



JOURNAL

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The White House is one of many sightseeing attractions NAEB conventioners may visit while in Washington October 23-26, 1961.

On the Cover . . . Dr. Richard Berg teaches "New Adventures in Music" for grades 3 and 4 and "Music Wherever You Go" for grades 5 and 6. Story on page 25.



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40,000-Square-Mile Classroom

Two-way radio is used for postgraduate medical education

There has never been a period in our nation's history when so much

By **Albert P. Fredette**

Manager, Radio Station WAMC, Albany Medical College, Albany, and member of the NAEB Board of Directors.

emphasis has been placed on education. The subject is discussed and debated in the press and magazines, over radio and television. There are problems at every level and in all areas. This article deals with a problem in a specific field: continuation or postgraduate medical education—and explains how two-way radio helped to provide a partial solution.

*Permission to publish this article has been given by the Department of Postgraduate Medicine of the Albany Medical College of Union University.

In the medical profession it is important, perhaps more so than in any other profession, for all doctors to keep well informed so that they may apply the latest medical discoveries in the care of their patients. Further, it is stated in the American Medical Association's Principles of Medical Ethics: "Physicians should strive continually to improve medical knowledge and skill and should make available to their patients and colleagues the benefit of their professional attainments."

For the past several years, medical colleges throughout the country have been expanding their postgraduate activities in an effort to assist the physician. Still, the attendance by the doctors at these sessions has been low. What were the reasons?

In a study conducted by the Council on Medical Education and Hospitals of the American Medical Association, 4,923 physicians were

asked to indicate the factors which they felt to be important deterrents to their attending postgraduate programs. In order of their importance, the reasons given were as follows:

1. No one to care for patients while away.
2. Courses given at unsuitable time.
3. Costs involved.
4. Multiplicity of other meetings.
5. Subject matter does not meet needs.
6. Lack of courses in physician's area.
7. Lack of information on courses.

Here, then, was a challenging problem. How to eliminate these deterrents so that physicians might obtain the important postgraduate education so vital to medical practice today.

RADIO USED

A unique approach to the partial solution of this problem was begun on December 5, 1955, by the department of postgraduate medicine of the Albany Medical College under the direction of Dr. Frank M. Woolsey, Jr., associate dean. This date marked the first successful two-way radio medical conference.

These two-way conferences came about through the efforts of a group of amateur radio operators (some of them associated with the medical college). The initial phase of this experiment was financed by a grant of \$4,000 from The Rockefeller Foundation and

was carried out on amateur frequencies in the 144 mc. band. A transmitter with the maximum power allowed (1,000 watts) was constructed and installed at Albany Medical College. On the days of a conference, the amateur radio operator would take his equipment (a transmitter, receiver, and antenna) to a participating hospital and use it for the conference hour. (12:00 noon to 1:00 p.m.). At the same time, two or more members of the Albany Medical College faculty would deliver a fifteen-minute or a twenty-minute lecture on a pre-selected medical subject and would use the balance of the hour to answer questions on the subject, which were asked via radio by the doctors assembled at the remote hospitals.

The charter group consisted of six hospitals within a radius of fifty air miles from Albany. The number of hospitals had grown to twenty-two by January, 1958. During this period, the conferences continued on the amateur frequencies and the record shows that some seventy-six amateurs donated their time and talent in the hospitals throughout New York and New England to help make these conferences a success.

FM STATION STARTS

In 1958, through a new grant from the Rockefeller Foundation, Albany Medical College became the first medical college to own and operate an educational FM radio station (WAMC, 10 kw. at 90.3 mc.). The engineering is provided

by the medical electronics division of the Albany Medical College.

Since the coverage of the 144 mc. transmitters was known, it was safe to assume that the same coverage could be expected in the 153 mc. range. Accordingly, applications for remote broadcast pickup transmitters in the 153 mc. band were filed with the Federal Communications Commission. On receipt of these licenses, remote broadcast pickup transmitters and FM tuners or receivers (depending on the distance involved) were purchased for use in the various participating hospitals. In February of 1958, these facilities were used for the first time for the two-way radio medical conferences.

Since the WAMC transmitter was installed at the top of Mount Greylock, the highest mountain in Massachusetts (3,500 feet above sea level) and some forty air miles from Albany, directional antennae were used at the hospitals for the remote transmitters. Transmissions were then beamed to Mount Greylock and simulcast on 90.3 mc. In like manner, a studio transmitter link on 940 mc. was used for transmissions from our college studio to the mountain. This, then, allowed anything transmitted from either a remote hospital or from the studio to be heard by anyone with an FM receiver capable of receiving our broadcast signal.

In November of 1958, a grant from E. R. Squibb & Sons, a division of Olin Mathieson Chemical Corporation, enabled us to make remote facilities available in Boston, Massachusetts; Burlington,

Vermont; and New Haven, Connecticut—thus allowing the teaching burden, then entirely on the shoulders of the Albany Medical College faculty, to be shared by the faculties of the medical schools of Boston University, Harvard, Tufts, the University of Vermont, and Yale. For the first time, physicians could question noted medical educators from these six medical colleges without the necessity for the doctor to leave his hospital or the educator to leave his campus. To improve continuity, a tone alerting network was installed throughout the conference network. Affectionately referred to as our "electronic hand-raiser," it consists of tone transmitters at the remote locations and tone receivers at the studio control room. When the alerting button is pressed at the participating hospital, a light goes on indicating to the medical moderator at the studio that a hospital group has a question and also indicating which hospital group it is. With the addition of this innovation, the forty-thousand-square-mile radio classroom was complete.

Within this system the visual has not been overlooked. Mimeographed teaching aids such as charts, graphs, and outlines are furnished to the physicians when they arrive at the hospital prior to the conference. Also, duplicate slides, sent out in advance, are simultaneously shown on cue. As a visual experiment, one program was produced with the first half-hour on open-circuit television. This was immediately followed by

a one-hour, two-way radio conference with the same panel and hospitals participating.

IN SIXTH YEAR

October of 1960 began our sixth year of two-way radio medical conferences. Thirty hospitals within a 130-mile radius of Albany participate. The conferences are held for twenty-four weeks each year. Three times each week, ten different hospitals comprise the conference group. In addition to the medical colleges mentioned earlier, the State University of New York Upstate Medical Center at Syracuse, the University of Rochester School of Medicine and Dentistry, and the division of post-graduate medicine of the Pennsylvania Hospital at Philadelphia have participated during the 1960-61 conference year. These medical groups were linked to our studio by means of two Class "D" telephone lines.

Careful statistics have been gathered since the beginning of the conferences and are obtained from evaluation cards completed by the physicians at the conclusion of each conference. These statistics show that the average total attendance for the first three conference years, 1955-58, was 3,976. In the 1958-59 conference year, attendance increased to 5,425, and in 1959-60, attendance rose to 6,388. In addition to these figures, we estimate that more than one hundred doctors listen in their homes or offices each week.

These conferences will be available to more physicians next year,

since educational stations WGBH in Boston and WFCR in Amherst, Massachusetts, and commercial station WBMI in Meriden, Connecticut, will carry the conferences.

The fact that this technique was established by a medical college is not valid reason for limiting it to medical education. Following this premise, we brought remote units to eight senior high schools within our coverage area and asked Lieutenant Governor Wilson of New York State to give a short report on the then just-completed 1960 state legislative session. Students had the opportunity to question him directly. It is quite unlikely that the Lieutenant Governor would have had the time to come to each of these schools. But, without leaving his office in the state capitol, he was able to speak to and answer the questions of groups from eight schools. The Lieutenant Governor was quoted as saying, "This project has tremendous potential."

As a result of this high school two-way radio session, the same group is planning more two-way radio programs during the coming year in various subject areas.

Over the past six years, we feel we have gained enough experience to be of assistance to those who would like to utilize this technique within their own area of education. To this end, all of our engineering, programing, and statistical information is available to those who request it.

A Comment—

The outstanding characteristic of radio broadcasting, either sound or

By **C. M. Jansky, Jr.**

*Jansky & Bailey, consulting
engineers for NAEB.*

television, is its suitability for the dissemination of program material simultaneously to a large number of reception points within the service area of a transmitting station. Therefore, for educational purposes, a broadcast station (or a network of stations) provides an excellent medium for the "lecture" type of instruction.

So far an inherent limitation in educational broadcasting has been the absence of any technique which would make possible "classroom" instruction. That is, the type of instruction in which students can ask questions, be asked questions, and can enter into the discussions. The association of "correspondence" methods of instruction with educational broadcasts is not an adequate substitute for classroom discussions.

The importance to education of the technique described by Mr. Fredette is that he has described a radio classroom of almost limitless possibilities in which the student can do something more than to absorb lecture material.

There are a number of methods by which talk-back circuits can be provided for groups of students, thereby creating a true "radio classroom" and it is probable that there are other examples of the type of operation described by Mr. Fredette. Audio talk-back circuits may use either radio channels, wire circuits, or possibly microwave circuits and technically they may be associated either with sound or television broadcast stations. I suggest that educators and educational broadcasters explore the full potentialities of the application of such systems as the one now in operation at Albany Medical College. This is particularly important at this time as the full development of this technique may require that a petition be filed with the Federal Communications Commission for the assignment of a number of radio channels specifically for this purpose.

ETV Discussed at NAB

Quotes from talks at the 1961 NAB convention in May

Newton N. Minow

Chairman, Federal Communications Commission

I will do all I can to help educational television. There are still not enough educational stations, and major centers of the country still lack usable educational channels. If there were a limited number of printing presses in this country, you may be sure that a fair proportion of them would be put to educational use. Educational television has an enormous contribution to make to the future, and I intend to give it a hand along the way. If there is not a nationwide educational television system in this country, it will not be the fault of the FCC.

* * *

My concern with the rating services is not with their accuracy. Perhaps they are accurate. I really don't know. What, then, is wrong with the ratings? It's not been their accuracy — it's been their use. Certainly, I hope you will agree that ratings should have little influence where children are concerned. The best estimates indicate that during the hours of 5 to 6 p.m. 60% of your audience is composed of children under 12. And most young children today, believe it or not, spend as much time watching television as they do in the schoolroom.

Abraham Ribicoff

Secretary of Health, Education, and Welfare

Large areas of our country still do not enjoy the benefits of educational television. Many people who have a real interest in starting educational television programs are frustrated by a lack of equipment and funds. . . . They know that educational television provides a means of removing barriers which have isolated American teachers, one from the other. They know it can help bring the American home back into the central orbit of education; that it can remove for students the gap between school and home and give parents a window through which they can look at their children's instruction. They know too that educational television could focus sustained national attention on our music, our arts, our literature, and drama. They know these things. They want to join in the educational television effort. But they do not have the means to utilize this remarkable tool for instruction on a nationwide basis.

* * *

Our jobs are cut out for us. We will go forward with educational television. We will do everything in our Department to assist our congressional leaders in giving us the legislation we need. I know you will continue your generous support of this program, which holds so much promise for revitalizing our nation's education — in and out of classrooms.

* * *

Our educational needs pose a challenge of enormous proportions. In the struggle in which we are now engaged — a struggle testing whether our nation, and the freedom it symbolizes, can long endure — in this struggle, education is one of our great resources. Education will enable us to make scientific progress. It will also enable us to win the support of the uncommitted areas of the world, who are judging us by our culture and our values as well as by our material progress. It is encouraging to know that we have in educational television a tool to help us meet this challenge.

B of E + TIO = D470

New York teachers learn to hows & whys

In the transcript of President Kennedy's press conference on February 1, the bracketed word "[Laughter]" appears only once. Miss May Craig of the Portland [Maine] *Press Herald* is speaking:

"Mr. President . . . There is growing concern expressed by parents, clergy and J. Edgar Hoover about [Laughter] about the effect on young people of crime and violence in movies and on the air. . . ."

While the record does not show whether it was the grammatical or the substantive incongruity that touched the risibilities of Miss Craig's colleagues, the newsmen need not have been surprised. The juxtaposition of the words *children* and *television* has evoked hundreds of thousands of words from such various sources as Paul Witty, Robert Saudek, Danny Kaye, Hilde Himmelweit, Harry Golden, Gilbert Seldes, Fredric Wertham, and Clare Boothe Luce—to say nothing of J. Edgar Hoover, clergy, and parents.

Another group that has repeatedly expressed concern about television and children is, of course, teachers.

By and large, however, these have been negative expressions of concern: about reduction of time spent

By Lawrence Creshkoff

Executive editor, Television Information Office, New York. Formerly director of the Chelsea CCTV Project and assistant manager of programs, WGBH-TV and FM, Boston.

on homework; about reduction of time spent on reading. Few teachers have had at their disposal the resources to follow Wilbur Schramm's advice to the American Association of University Women:

" . . . I suggest that you do not think in terms of what television does to children, but rather, *what do children do with television?*"

Here is an experience—watching television—that daily occupies from

two to six hours of most children's lives. For both children and their parents it is probably the single activity that is experienced in common with the greatest number of their fellow citizens, cutting across economic, social, educational, religious, and ethnic lines. Here is a medium that is the primary source of entertainment and information for millions of people. Here is a major industry—subject by law to a measure of federal regulation—that both affects and is affected by the state of the national economy.

Yet, what can elementary and

high school teachers teach their students about television? How many teachers can answer the most basic questions that their pupils might ask about the medium? Do they understand the functions of the networks? stations? advertisers? FCC? Do they understand—even in the most rudimentary fashion—why there are limitations on the number of television channels in a given community? Are they aware of what is involved in putting a program on the air? Or of the artistic problems that the writer faces in writing for television? Have they given serious

TELEVISION IN TODAY'S WORLD: Topics and Lecturers

Introduction: Roy Danish, Assistant Director, Television Information Office.

Television: A Communications Perspective: Lawrence Creshkoff, Executive Editor, Television Information Office.

Technical Aspects of Television: Frank Marx, Vice President, General Engineering, American Broadcasting Company.

Television and Government: Thomas K. Fisher, Vice President and General Attorney, CBS Television Network.

Television Stations and Networks: Frank Shakespeare, Vice President and General Manager, WCBS-TV.

Building a Station's Program Schedule: William N. Davidson, Vice President and General Manager, WNBC and WNBC-TV.

Television and Advertising: Joseph Stamler, Vice President and General Manager, WABC-TV.

Producing a Television Program: Richard I. Lewine, Director of Special Projects, CBS Television Network.

Television and the Writer: William Hodapp, Instructor in Television, Motion Pictures, and Radio, New York University.

Television As a News and Public Affairs Medium: Irving J. Gitlin, Director, Creative Projects, National Broadcasting Company; and Edmund Cramer, Assistant Program Director, WCBS-TV.

Television's Impact on Society: What Does Research Show?: Dr. Joseph T. Klapper, Consultant in Communications Research, General Electric Company.

The Television Critic: Dr. Louis Forsdale, Professor of English, Teachers College, Columbia University.

Literary Forms of Television: Dr. Neil J. Postman, Assistant Professor of English and Speech, New York University.

Applications for Education: (2 sessions) Panels of curriculum supervisors.

TELEVISION IN TODAY'S WORLD: Suggested Reading List

- BACHMAN, JOHN. *The Church in the World of Radio-Television*. New York: Association Press, 1960.
- BARNOUW, ERIK. *Mass Communication*. New York: Rinehart, 1956.
- CHAYEFSKY, PADDY. *Television Plays*. New York: Simon and Schuster, 1955.
- HEAD, SYDNEY. *Broadcasting in America*. Boston: Houghton, Mifflin, 1956.
- HIMMELWEIT, HILDE with A. N. OPPENHEIM and PAMELA VANCE. *Television and the Child*. London: Oxford University Press, 1958.
- KLAPPER, JOSEPH T. *The Effects of Mass Communication*. Glencoe, Illinois: The Free Press, 1960.
- SCHRAMM, WILBUR. *Responsibility in Mass Communication*. New York: Harper, 1957.
- SELDES, GILBERT. *The Public Arts*. New York: Simon and Schuster, 1957.
- TV Guide Roundup*. New York: Holt, Rinehart and Winston, 1960.
- WRIGHT, CHARLES. *Mass Communication: A Sociological Perspective*. New York: Random House, 1959.

thought to how they can make use of television programing in furthering their own teaching objectives?

A number of educators who *have* given considerable thought to the changing roles of the teacher in this era of the "third communications revolution," and who are concerned over the extent to which television engages the attention of school children, have urged teachers to take an active part in helping their pupils cultivate the capacity for informed and discriminating viewing of television.

In conversations during the spring of 1960, Dr. William H. Bristow, director of the New York City Board of Education's Bureau of Curriculum Research, suggested that the Television Information Office could take a first step in the direction of teacher training by preparing a pilot course that would help teachers become better informed

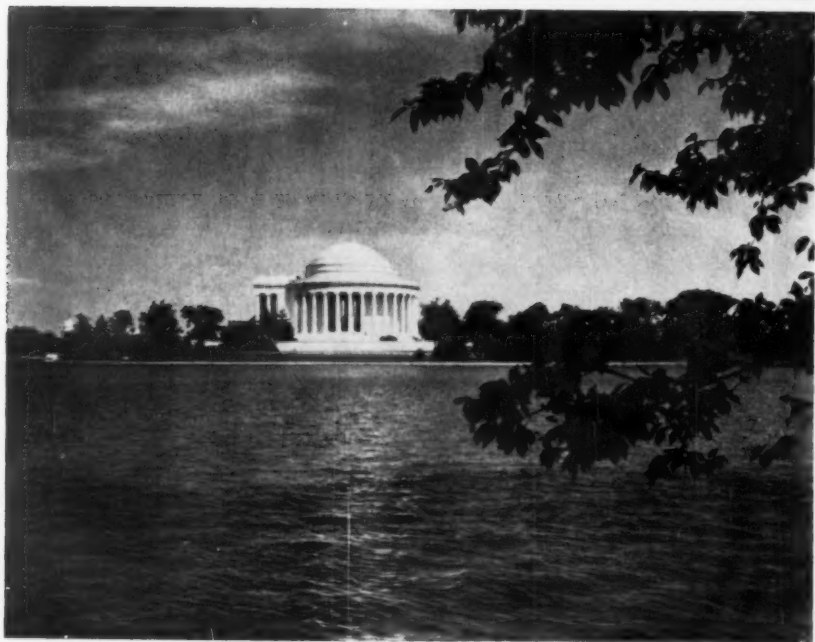
about television as a communication form, as an art form, as an industry, and as an institution in our society. Plans for the course were developed in collaboration with Dorothy Klock, acting director of broadcasting; Florence Monroe, television coordinator, and Renee J. Fulton, director of in-service training—all of the New York City Board of Education—and Dr. Neil J. Postman, assistant professor of English and speech, New York University School of Education. Roy Danish, assistant director, Television Information Office, coordinated the preparation of the course.

In-Service Course D470, *Television in Today's World*, consists of fifteen sessions, Thursday afternoons from 4:15 to 5:55, February 16 through June 1, 1961. The group meets in the auditorium of the New York Public Library's Donnell Center, and in television studios of New

York City stations. Enrollment in the course is limited to 260. (Because of seating limitations, 90 candidates for registration had to be turned away.) In addition to lecture-demonstrations, guided studio visits while programs are in production have been arranged for the enrollees in groups of 20.

Both the educators and broadcasters working on D470 feel that they are breaking new ground. With some modifications to deal with local situations, school systems and broadcasters in other cities could cooperate in similar fashion. For broadcasters, such cooperation can result in greater understanding of the

needs and concerns of the educational community, as well as provide a meaningful link with an important body of opinion-leaders. For educators, such cooperation can result in greater understanding of a significant contemporary medium of expression, as well as provide a useful adjunct to traditional teaching resources. And, in the words of Louis Hausman, director of the Television Information Office, commenting on the inauguration of Course D470, "Responsible and informed examination of television by teachers could, in the long run, be a most effective means of shaping the future of the medium."



The Jefferson Memorial and the Tidal Basin are just across the Potomac from the Marriott Motor Hotel, Washington, D. C., where the 1961 NAEB convention will be held from October 23-26.

ETV: A Blueprint for Action

RCA president tells what 2 ½ billion dollars can do

I have written and talked so much about educational television lately that I feel a kinship with the

By John L. Burns

President, Radio Corporation of America. An address delivered at the NAEB-IERT luncheon, Columbus, Ohio, April 28, 1961.

Harvard psychologist who overheard a conversation among the white mice in his laboratory. The smartest and plumpest of the mice was boasting: "I've got this fellow so conditioned that all I have to do is press a button and he feeds me."

When my button was pressed for this speech, I experienced the same conditioned reflex of acceptance that the words educational

television have always stirred in me. What we need is more, not less, talk about the promise of educational TV, and about the urgency of using it to solve our paramount national problem.

It is true that, in human terms, the growth in educational television's first eight years has its impressive aspects. Gifted students in small rural schools are taking college preparatory courses; classroom demonstrations are being enriched by treasures from art, science, and history museums; the abstractions of higher mathematics are being brought to a nationwide audience of early-risers; students are completing as much as two years of college in their living rooms; parents are tuning in to follow the daily lessons with their children.

It is also true that we have registered statistical progress. Our 56 educational stations can reach

70 million people; 150 closed-circuit systems operate in schools and colleges; 7,500 schools use television for regular instruction; 250 colleges and universities give academic credit for televised courses; altogether, more than 4 million students receive part of their instruction by TV.

These figures indicate that we are out of the incubator — but no more than that.

Even after eight years, only two per cent of our students get any significant portion of their education from the picture tube. At the present growth rate, educational TV will not be the primary instrument of instruction until the year 2360 — when our great, great, great grandchildren are enrolling in the first grade!

The real threat is that progress at this pace might dwindle into no progress at all. In Thornton Wilder's words, "Every good and excellent thing . . . stands moment by moment on the razor-edge of danger." The increasing demands for new skills and higher scholarship, coupled with the growing shortages of teachers and facilities, give a surgical urgency to the nation's educational needs.

What must be done to alter educational television's fragmented character, to move its electronic signals into classrooms from coast to coast, to link its varied elements in a planned program of growth?

Much has been written and spoken of educational television's

bright promise in terms of individual experiments, but I believe its ultimate promise can be realized only from an over-all approach, because the individual experiment is too small to show the way.

For this reason, my discussion today will be directed at outlining such an approach, estimating its cost, and suggesting possible steps to implement it. Perhaps with this as a background, some of the fertile minds in this room and elsewhere in education and broadcasting, can refine and improve my suggestions in order to bring the most urgent necessity of our time into being more quickly.

To get educational television off the ground, on a national scale, will require a massive injection of money, in the area of two and a half billion dollars. It would be one of the most prudent investments we, as a nation, could make, because it would offer our best hope — and surely our most realistic one — for achieving a substantial upgrading of educational quality on a short-run basis and at a cost we could afford.

This 2-1/2 billion-dollar investment would buy:

- Another 150 ETV stations giving us a nationwide educational network comparable to our nationwide commercial networks. Approximate cost: \$100 million.
- Branching closed-circuit systems for all schools in the United States. Approximate cost: \$900 million.
- Studios and television tape

centers for originating programs for these closed-circuit systems. Approximate cost: \$900 million.

- Television receivers for our million and a quarter classrooms. Approximate cost: \$600 million.

What could be accomplished, educationally, with facilities of this magnitude? We could meet our three most imperative needs in educational television today.

NEEDS CAN BE MET

First, we could forge a stronger union of the teaching, broadcasting and graphic arts.

In many ETV experiments, the temptation has been to wheel a camera into a classroom and present a succession of teachers lecturing in front of gray drapes. The result can be, and often has been, worse than no television at all. An unimaginative teacher in one classroom is a misfortune for 35 or 40 pupils, but if you put him "on camera" you multiply the misfortune for hundreds or thousands of students.

With a program of the scope I have suggested, we could select the best teachers available and support them with the most effective aural and visual techniques. By combining the most venturesome concepts of educators, broadcasters, and graphic arts specialists, we could develop more stimulating presentations in every subject from arithmetic to zoology. And we could make these presentations available

promptly to teachers' colleges and other educational groups, thus starting a chain reaction of teaching excellence. We need training schools for television teachers just as we need dramatic schools for actors and actresses.

Shakespeare's schoolboy "creeping like a snail unwillingly to school" was a victim of poor teaching, but no power in his day could rescue him from this fate. Today, we *can* do something about the educational fate of 45 million American students.

Television, responsibly and creatively used, offers a matchless opportunity for introducing reality into the classroom, conveying the excitement inherent in the learning process, recapturing the spirit of scholarly adventure so well expressed by Erasmus who said: "When I get a little money, I buy books; and if any is left, I buy food and clothes."

The *second* thing we could accomplish with our 2-1/2 billion-dollar investment would be to establish in every state comprehensive libraries of television tapes and films by outstanding teachers.

Through an exchange system, each school in a particular area could contribute to one of these libraries and share its program material. The school with a talented arithmetic teacher could commit her presentations to tape and distribute them widely; the one with a well-appointed physics or chemistry laboratory could make

its demonstrations available to hundreds of others; the one with a gifted music and art faculty could supply those unable to afford their own specialists.

The TV tape equipment needed to translate this prospect into performance is already available. Only last month, simplified tape recorders, selling for roughly half the price of standard commercial broadcast equipment, were introduced, and there will be further technical advances and further economies in this equipment field. The new units already make control of originating facilities financially feasible even for moderate-size educational institutions.

For the schools, a tape-and-film exchange program would remove any excuse for 41 per cent failing to offer instruction in foreign languages, as is true today; or 36 per cent neglecting to provide a course in physics.

For the teacher, the system would permit him to concentrate on the activity for which he is best suited, whether it be lecturing to thousands of students or counseling the individual. On the basis of my own teaching experience, I am convinced that individual guidance is the most important aspect of teaching. With television, the hours spent in providing personal help could be multiplied many times; the general level of teachers' pay could be raised; and they could enjoy a greater measure of personal prestige. The teacher is the

key figure in the educational process, and the element of human contact must always be supreme — but the method is important, too, as the textbook has proven.

Technological unemployment would be no threat for qualified teachers because the demand has far outraced the supply. According to the Ford Foundation's Fund for the Advancement of Education, it would take half of all college graduates over a ten-year period to meet our need for new teachers, and obviously far less have been entering the profession. Many years ago, Charles W. Eliot observed: "The fear of losing one's job has kept education in America fifty years behind its possible improvement." This fear is as thoroughly unfounded today as it was then; and we must work energetically to remove it as a psychological block against educational TV.

The *third* accomplishment from our investment would be the development of state-wide, region-wide, and nationwide educational television systems.

Those systems would function through open circuits, closed circuits, economical television tape machines, and various combinations of these elements. Although no rigid priority system is necessary, the open-circuit broadcasts, it seems to me, should come first because they would serve to showcase the virtues of televised education to the community in the

most eloquent manner possible. Concurrently, in many places, would come the closed-circuit systems and tape machines which would form the ultimate hard core of instructional facilities, bringing the advantages of multiple-channel television to every classroom in the nation.

The television tape machines would introduce a new flexibility into the curriculum, enabling schools to schedule demonstrations and other programs at the most convenient hours. Television tape would also permit major economies through the repeated use of outstanding presentations.

With all these elements functioning in concert, every community would be able to select the finest program material appropriate to its own needs. Far from imposing uniformity on local curriculums, these systems would impart a richness and variety often lacking in today's academic programs. They would serve elementary and secondary schools, colleges and universities, and even adult education classes.

I believe the three accomplishments I have outlined would solve our basic national education problem within a decade, and it is against the backdrop of this probability that the cost of 2-1/2 billion dollars should be evaluated. Today, education represents our largest single category of public spending next to national defense — 19 billion dollars a year. What we are talking about for television fa-

cilities, then, is 13 per cent of one year's budget.

Nevertheless, to raise such a sum, a supreme effort will be required by every element involved in education — federal, state, and local governments, foundations, business and industry, and other private sources. It will not be easy, any more than the shift from planes to missiles was easy in a military sense. But it will be just as significant to education as mis-silry is to security.

Last year, more than half the money spent by states and localities on public-school education came from property taxes. In many communities, this tax base is approaching the saturation point; historically, as a revenue source, it has been unresponsive to increases in national income.

While elementary and secondary public-school enrollment has doubled since 1900, expenditures for it have gone up more than seventy-fold. Since 1950 alone, such expenditures have risen over 150 per cent.

With present instructional methods, school costs are likely to continue climbing along with enrollments. With television, the economic ground-rules can be drastically altered.

Experiment after experiment has shown that the larger the number of students viewing a program, the lower the per-pupil cost. In one midwestern area, 30,000 pupils in 1,000 different classes are being

taught Spanish by an exceptionally talented teacher at a per-pupil cost of less than a penny a lesson. Directors of the Midwest Program on Airborne Television Instruction estimate that if one million pupils use the program the first year, the cost of each child's televised education will be no more than two dollars. Eventually, they hope to reduce the cost to fifty cents a child.

WORLD-WIDE IMPLICATIONS

Our success or failure with educational television will have profound implications throughout the world. Our partners in the Western alliance are also faced with the problem of educating their children with too few teachers and too few classrooms. They, too, recognize the urgency of getting better results for lower per-pupil costs.

But formidable as the educational problems of the Western nations are, they are far outstripped by those of the developing areas of Asia and Africa. Scarcely half the world's 550 million school-age children are actually receiving any formal education, and the bulk of the educational have-nots are in this region.

A significant beginning in these areas might be made by providing rudimentary and inexpensive phonograph records and radios, perhaps as part of our foreign aid program. In this way, sound alone might be used at the start, possibly supplemented with slide projectors

in some cases. Then, as the idea of electronic teaching aids achieves acceptance, television might be introduced on a gradual basis.

Imagine the strides that could have been made toward stamping out illiteracy in the past decade if we had spent on electronic educational tools just one per cent of the 36 billion dollars we spent on military aid.

There are 700 million adults on our globe, one-fourth of the population, who neither read nor write. They never will, if we stick to conventional education methods. Their only fighting chance is through the spread of electronic techniques. On a broader canvas, these same techniques might also give all people, literate and illiterate, a fighting chance to live in peace. For, as Lord Attlee has said: "Since wars begin in the minds of men, it is in the minds of men that the defenses of peace must be constructed."

It is in the minds of men, too, that the campaign to upgrade our educational standards will be won — or lost. For even in a world of power, the power of ideas remains supreme.

We — you and I and all those involved in this field — can move the full realization of educational TV from the twenty-fourth century to the twentieth, if we act promptly and decisively.

Specifically, I propose that the National Association of Education-

al Broadcasters take the initiative in setting up a steering committee comprised of leaders in the fields of education, broadcasting, business and industry, and government. This committee should then:

1. Draw up a national plan for the comprehensive development of educational television.

2. Prepare detailed budget proposals for large-scale public and private financing.

3. Establish general timetables for the build-up of open-circuit and closed-circuit systems, plus tape-and-film libraries.

4. Seek to enlist the whole-

hearted support of the Department of Health, Education and Welfare, the foundations, and other interested principals.

5. Mount a massive informational campaign to persuade every American that failure to support this effort will mean the forfeiture of our children's educational heritage.

Ours is a task of formidable proportions. It can be accomplished only if we pursue it with energy, intelligence, and dedication. We must, all of us, keep pushing buttons everywhere — and keep responding when our own buttons are pushed.

Fresno's 21" Classroom

A review of nine semesters' use of tv

Can extension courses geared to in-service teachers be successfully taught over a commercial television station? Will teachers buy this kind of instruction? Will a television-trained student learn as much as his classroom-trained counterpart?

These were a few of the questions instructors and administrators at Fresno State College were asking themselves in 1956 when commercial KMJ-TV offered the college an hour of public-service time on Saturday morning to be used for educational purposes. Nine semesters and ten courses later, some of these questions can be answered, at least in part. The big question that first Saturday morning was: Would anyone enroll? The answer was, yes: 202 students had paid the enrollment fee of fifteen dollars; at semester's end, 185 of them had earned two units of college credit.

With this kind of encouragement, continuation became a reality and to date all sorts of courses have been offered—California literature, music appreciation, sociology, philosophy, psychology, theater, the Bible, great books, and an education course in arithmetic.

Problems, however, were many. Money, or rather the lack of it,

By Flo Hansen Brenninger

Professor of English and speech, Fresno City College. Previously she worked in commercial radio and television for fifteen years.

was the most salient problem. Also circumstances made it impossible to reduce the regular teaching load of the TV instructors. Funds for visual aids were nonexistent, and instructors often paid for them out of their own pockets. Salaries of instructors were paid by the self-sustaining extension department of the college which operated on a setup designed for other purposes not related to TV. Top salary for a semester was \$440 if the class reached 40 members or more, with no provision for larger classes. Minimum salary was \$192 if the class enrolled less than 20. If two instructors taught the course the salary was divided between them. Preparation time per

instructor varied from 200 to 400 hours which made the sum of \$400 almost ridiculous. But in spite of obstacles, in spite of the shoestring financial operation, to date, some 650 students have completed a total of ten courses; what's more, instructors enjoyed the new medium so much that seven of the thirteen involved expressed a desire and willingness to have another go at it.

Enrollment fluctuated from a low of 25 students to 202, an average of about 64 students per semester. Un-counted thousands merely watched.

COURSES

Of the ten courses offered, all were upper-division courses, except music appreciation and landscape gardening. Both lower-division courses pulled enrollments of less than 40. Yet both were highly televisable. Two upper-division courses—race relations and the theater—also good courses for television, had less than 40 enrollees. Instructors felt that lower-division courses were more realistic on a commercial station, but student enrollment did not bear this out, nor did the so-called televisability of the course. Students requested most often abstract-idea courses such as literature, philosophy, and education which instructors felt were most difficult to teach by television.

METHODS OF INSTRUCTION

Many methods of instruction were tried, everything from straight lecture to panel discussions to dramatic

productions. No "best" was discovered, but the accolades of the students were showered on the theater class in which a portion of a play was dramatized each week. Achievement-wise the education class in advanced problems in teaching arithmetic did better than three similar classroom classes taught by the same instructor with which it was compared. Even more remarkable, not one of the 85 students enrolled in the arithmetic class dropped the course before term's end. In this class the instructor not only involved the students in various methods of solving the same problem by using four easels on which the various solutions were entertained, but he posed problems the student had to solve at home and mail in. Other problems were given in the syllabus. This homework technique required a great deal of time on the part of the instructor since he commented on each student's work, but it did enable him to "know" his students, their mathematical personalities, and their areas of difficulty.

STUDENT COMPLAINTS

The chief complaints of the students in all classes were the lack of student-instructor contact and the inability to take notes because of the instructor's rate of delivery, or, more often, the shortness of the time the camera remained focused on visual material which the student wanted to copy. Instructors worried about the same problem, being most

concerned whether a point was clear or not.

Many attempts were made to solve the problem of lack of student-instructor contact, all of them more or less left-handed solutions. Students were encouraged to telephone questions, for example. However, the technique was not too successful since students were reluctant to miss part of the lecture while placing calls or were too far from the campus to make a call feasible. Viewers telephoned in more questions than students. Mailing in questions was also tried but was not subscribed to with enthusiasm. Projects such as the garden book compiled by the students in the landscape gardening class had some contact value; other instructors used optional research papers. Syllabuses and assignment sheets were used by all instructors, but were as varied as the classes themselves, running all the way from a 2-page mimeographed sheet to one which contained 145 pages. Students praised the syllabuses with study helps and added reference material. The studio class as a kind of vicarious instructor-student contact was tried only once and its value, or lack of it, was unproved. Students suggested that the mid-term examination be moved nearer the beginning of the semester to enable them to meet the instructor in person earlier in the semester.

TYPE OF STUDENT ENROLLED

The majority of the TV enrollees were women, outnumbering men

four to one. Of the 641 students who completed the ten courses offered by television, 516 or 80% were of the fairer sex. Drop-outs were few; only about 8% of the total enrollment dropped a course before completion.

The television student was older than his college counterpart by about twenty years, having graduated from high school between the years of 1920 and 1940.

In eight courses surveyed, 80% of the enrolled students were regularly credentialed or provisionally credentialed teachers. About 60% of them held a bachelor's degree. Also of interest was the fact that teachers of primary grades were the heaviest subscribers to the TV courses, with intermediate-grade teachers next.

Students listened in from distances up to ninety miles from the Fresno State College campus, although the majority lived between twenty and forty miles away.

One television course evidently led to another because about 37% of those enrolled in the last five courses had taken at least one other course by television.

Reasons given for taking TV instruction were distance from campus, daytime employment, need to earn a higher degree, or to secure a pay raise—but almost without exception each student added that enjoyment, convenience, and interest were also motives.

A comparison of the grade-point average of the TV student with those of regular upper-division college students taken from a statistical

survey made in 1952 and 1957 revealed that TV students earned slightly lower grades than did the regular students of those two years.

OPINIONS OF THE TV FACULTY

Most of the instructors found that the same course content could be used on television as in the regular classroom, but many felt that lower-division courses would be more realistic on a commercial station and would have more appeal. The desire, and often the need, to water down a course was ever present.

On the whole the same amount of material could be covered in one hour on television as in two 50-minute class periods, because of better organization and lack of interrupting questions. However, many instructors felt misunderstandings could occur much easier on television without the instructor being aware of the fact that he had lost all or part of his class.

Instructors mentioned dramatic effects, such as the reading of poetry with musical background, smooth integration of films, slides, dramatizations, demonstrations in which the camera could zero down on minute objects, problem solving, and panels of three or four experts as tremendously effective on television, much more so than in the classroom. Abstract-idea courses were conceded "difficult" on TV because ideas need discussion, even though students requested these kinds of courses most often. The panel discussion was thought by instructors to handle this type of course most

effectively. The most specific and factual courses were labeled by the instructors as most televisable. The performance of the arithmetic class seemed to underscore this opinion.

Achievement of the TV classes, according to the instructors, was equal to that of regular upper-division college students in the upper quartiles, but all instructors felt that those students who fell into the lower quartiles often did much worse than their college counterparts.

The uncertainty of whether a point was clear or not and the foreignness and coldness of the TV studio caused the instructors the most tension.

On the whole, instructors conceded that intensive preparation for television upgraded their teaching of the course in regular classes, but, by the same token, the material was often so well digested that it palled on them, and a semester's rest was desirable before teaching the course again.

The cultural aspect of the courses to the community was not measurable, but instructors felt it was there by the way they were greeted as old friends by total strangers in communities throughout the valley.

EVALUATION OF TECHNIQUES AND VISUALS

Instructors, KMJ-TV television directors, and students were canvassed to determine what visual presentations and techniques seemed most effective.

Although straight lecture was vetoed by all three groups, students and directors felt a few good visuals

were better than too many. Students voted most often for lecture with clear diagrams, graphs, or other pertinent copyable material. Panel discussion groups were considered good, but often hard to follow, and often deviating. Instructors favored panels slightly more than did the students. Demonstrations and close-ups of experiments were given first place, with dramatizations a close second. Most students pleaded for more camera time on all visual presentations.

Television directors did not favor the blackboard as a visual aid because it too often became a crutch for the instructor. Chalk flipping, aimless pacing back and forth, and other distracting movements were apt to result. One director labeled both guest speakers and studio classes as poor TV devices because both could be too camera conscious and therefore distracting.

CONCLUSIONS

Did the nine semesters of experience with the television medium as a channel of instruction provide answers to the questions posed by instructors and administrators at Fresno State College? Positive yes-and-no answers, perhaps not, but directions and possible solutions, yes.

It seems plausible to assume, for example, that the eight different subject fields probed in the ten courses offered on TV indicate that something can be learned from any course presented on the medium. However, the courses which profit most from sight and have the most specificity

are better adapted, as was evidenced in the arithmetic class. Yet students ask for the so-called cultural courses most often, either because of the prestige factor or because these are the courses needed for advancement goals.

In-service teachers did take advantage of the service offered them since 80 per cent of the enrollees were either credentialed or provisionally credentialed teachers. But even more important, others also bought the service—and the countless thousands who never enrolled but were faithful viewers gave the venture a cultural aspect that cannot be measured.

As for grades, TV students earned grades comparable to their classroom counterparts even while carrying a full program of teaching.

But these were only a few questions answered, a few of the things learned. Students enjoyed the TV classes and rated them superior to regular college courses in interest, understanding, learning, and quality of notes. Yet they complained about the instructor's rate of delivery, on the amount of material covered, and most bitterly on the roving eye of the camera. This seems to indicate that the intense preparation of the instructor paid off, but that in some cases he was unable to sense student difficulties with respect to clarity, quantity, and pace. Perhaps some kind of TV orientation for the instructor is indicated.

Whereas no "best" method of teaching was found, the methodology used in the arithmetic class in which achievement was superior might well be re-examined since the instructor

did consciously utilize to advantage the focus a 21-inch screen can give to a problem, and he did involve the students in the problem he was presenting. The appeal of the dramatizations in the theater class should also not be overlooked.

The lack of student-instructor contact was never satisfactorily solved by any of the devices tried. Written assignments, while successful in arithmetic, may not have proved so in other classes. The lack of direct contact must be compensated for by other means: anticipating and posing possible student questions, a more complete study guide, meeting the instructor prior to mid-term and final examination periods, or moving the mid-term examination up to an earlier date in the semester.

The front-row aspect of TV, the enchantment of drama over the

medium, the way films and slides can be smoothly integrated into the lecture, the focal aspect of the TV screen itself, the experts that can be enticed into panel discussions, the dramatic effects that can be used on TV but which would be affected in a classroom—these were cited by the instructors as strong and powerful assets of the medium that needed exploitation.

Clarity, however, was the student's first concern, with interest second. The TV personality of the instructor, too, played a large part, perhaps more than either the instructor or the student realized.

Convenience was another aspect the student mentioned most often, together with interest and enjoyment—the convenience of coming to class in pajamas and sipping a cup of coffee at the same time.

TV teachers Mary Ellen Sulek and Effie Convel present the pre-school program, "Fun at One."



How To Choose A TV Teacher

*Author lists do's and don't's
developed for New York etv*

Selecting television teachers is a new problem for the educational broadcaster. Some program directors have already discovered that many expert classroom teachers are not effective on television. Why is this? And how can we be sure to select teachers who will be effective on television?

TEACHER VS ACTOR

First, we must start with a professional *teacher* and not an actor—a teacher who has had wide experience teaching on the particular grade level and in the subject to be broadcast over television. This experience gives the teacher a rich background that he would not have otherwise. It gives an exact knowledge of the subject material; an understanding of the needs, interests, and problems of the students; a wide vocabulary relating to the lesson; a familiarity with the school

curriculum so that the broadcasts are properly coordinated with the

By **Garry Simpson**

Currently a Ph.D. candidate in telecommunications at the University of Southern California, he has taught radio-TV at the University of Detroit. He was a producer-director for ETV Station WTVS, Detroit, and has produced radio programs for various educational FM

classroom work; and the ability to anticipate the viewer's questions. This teaching background is a necessity, and upon this foundation of experience and knowledge we may build a television-teacher personality *if* (and this is an important "if")



Steven Fischer presents science for the third and fourth grades.

the teacher has the necessary physical attributes. What are these attributes?

APPEARANCE AND PERSONALITY

The teacher's appearance has very little to do with his or her selection. It is true that pleasing looks, attractiveness, is an asset, but it is not essential. It is generally recognized that an interesting personality, an inner quality, is far more important than a pretty exterior. Enthusiasm, warmth, vitality, and a sense of humor are musts—with enthusiasm leading the list. Students cannot resist the fun of learning with an enthusiastic teacher. Also, the television teacher should have poise, should give us the sense of having command of the subject matter. The serious person who has a love of his

subject and who thoroughly prepares the lessons and presents the material in a calm and logical fashion is the person to choose. And remember, the pleasing personality actually promotes learning.

SPEECH

Of course the TV teacher should have good speech. This requirement may seem unimportant at first glance; we assume that all teachers have above-average speech, but it is not so. It is surprising to find so many regular teachers who have irritating speech. It is not alone the problem of a regional accent or the mispronunciation of words; it is the problem of *dull* speech, of irritating habits.

Broadcast teachers must have variety in their speech patterns. They must color words, use modulation, have good intonation, and give variety to sounds. Too many people have monotonous speech habits—either the one-note voice, or a nasal whine, or a strident rasping quality. The microphone does not reproduce exactly the natural frequencies and overtones of sound, and therefore it seems to amplify the irritating qualities of our voices.

In addition to the color of sounds, we should also be aware of the *manner* in which the teacher speaks. Some teachers, after years of keeping the attention of unruly classes, have developed a strident, threatening harangue. Beware.

The TV teacher should seem to

talk to us, simply, directly, and intimately. He should possess a good vocabulary for fluency but should use economy of language.

TELEVISION EXPERIENCE

We do not require our New York State teachers to have any previous television experience. This is because television teaching is new, and few people have had the opportunity to get experience in front of the TV cameras, and because we know that an excellent classroom teacher can be made into an effective TV teacher.

We do conduct a summer television workshop for all of our new teachers. Each teacher is given practice on camera. He is shown what the cameras can do to help him in his lessons—the use of the overhead projector, the bioscope, magnetic panels, rear-screen projector, and photo-reproducing processes. He is taught how to group his visual materials for the best TV reception, how to introduce variety and inject new interest into his lessons, how to use film as part of his program—and even how to hide notes if notes *must* be used!

FINDING THE CANDIDATES

It is always difficult to find the best teachers. You must ask school principals, superintendents, and other teachers to tell you about exceptional teachers. (We, of course, stress that only superior teachers



Mary McKee teaches an elementary science course for teachers, in the teacher-training program.

alone should go before the cameras.) Sometimes supervisors will not tell you because they do not want to lose these teachers from their own schools. (In New York State we are lucky to have a committee of twenty-one superintendents of education for New York City and the surrounding territory who have been most cooperative with us.)

You should publish the information that you are in need of teachers for your television project in the teachers' journals of city, county, or state teachers' associations. Perhaps the *N.E.A. Journal* will start a column to inform educators of the opportunities in television. And whenever you can, appear before a teachers' organization and tell the teachers of the TV challenge. Many are "set"

in their jobs and will not consider any change, but many others are ambitious and will welcome the challenge of change.

AUDITIONS

Do not choose a television teacher without a camera and mike audition. Have each one execute a test lesson in front of the cameras and watch the result on the monitor in the control room. It is not difficult to make the best selection; it is quite obvious. Of course, it is essential that all who audition are certified teachers within your state.

Following is a list of *do's and don't's* that we give our teachers when they audition. It is only fair that they have some knowledge of what is effective and what not to do on television.

DO'S AND DON'T'S FOR TV TEACHERS

General

1. The small red light on the front of the camera indicates that that camera is on the air. This is the one to talk to, if you are addressing the audience. If you are talking to a fellow participant, ignore the camera and concentrate on him. And of the four lenses on the front of the camera, the *top* lens is always the on-the-air one (RCA cameras). The lenses are changed to get close or wide intermittently.

2. Think of the audience as just two or three of your friends in a living room with you. Be natural, be friendly, be relaxed.

3. The microphone will be your friend if you will let it. Use a normal, strong

speaking voice. Don't mumble, don't trail off. If you have an overhead mike, do not look up at it. If you have a neck mike, get expert in handling the wire cord.

4. *Avoid* tapping fingers or pencil, crinkling paper, loud coughs (unmuffled) or any other sudden, loud noises . . . they are enlarged by the mike.

5. If you have an object to show the camera, ask your director before the program how to hold it for best effect.

6. When two or three people appear on camera together, they must stay close, for camera framing.

7. Remember, a friendly smile or grin can help you out of many tight spots. If you make a fluff, don't try to ignore it in hopes that no one noticed. Be assured that it was seen, but treat it as you would in your own class; it makes you *human*.

Dress

1. *Avoid* pure white and dead black; never have them adjacent. A yellow or light blue registers as white, a dark grey as black. To contrast properly on camera, colors must be at least two or more tones (shades) apart. Pastels are better than vivid, contrasting colors. *Please*, no black or white shirts, suits, or dresses.

2. *Avoid* bright, shiny jewelry, ornaments, or medallions. Light reflection is too great and they "bloom" or "halo."

3. *Avoid* extremes in any fashion—remember, you'll be on close-up most of the time. That is, you are mostly seen from the waist up; your feet will never show unless you are showing an object on the floor.

Movement

1. *Avoid* sudden or unsignalled movements. Try to lead your director and cameraman with a cue, such as, "Now, if we can just step over to the table . . ." then, move slowly and gracefully. Cameras and mikes must follow you.

2. *Avoid* swaying or back and forth movements, especially when in close-up.

3. Don't stretch hands or arms toward the camera—they'll look too big for you.

For Teachers with Guests

1. You have a big responsibility; it's up to you to keep things rolling smoothly. Be relaxed, but be *attentive*.

2. You must be *interested* in what a guest or participant is saying. If you are *interested*, you will become *curious*, and many good questions will occur to you naturally. Keep thinking, "Is he leaving out something interesting or important?"

3. Work as a team. Help each other out; don't be afraid to interrupt if you have a good point or if you don't understand something. If you don't understand it, many in the audience won't, and it should be explained or simplified.

4. Above all, be friendly and relaxed and your guest will be also.

5. Give your interested attention to any guest speaking or performing, even though you are not an active participant at the moment. You will often appear in the background of such shots, and the audience can tell if you're asleep!

Reminders

1. If what you do or say interests you, the audience will like it, too! Show enthusiasm over what you teach. It is catching. Learning is fun.

2. If you can *show* or *demonstrate* something, it is worth a thousand words of explanation or description.

3. *Think* about what you're going to do, then try to dream up simple but effective ways of presenting this visually. Keep your explanations simple and direct; we're not all experts in your field. On the other hand, don't look down on your audience—they will resent it, and you.

4. In the "dry-run" rehearsal with the producer-director you two will collaborate on exactly how the program is to be put together. This is your opportunity for questions and suggestions; use it! The "dry-run" sets the show, and on-the-air changes are not to be made except in emergency. When you move into the studio for camera rehearsal before the show, the director should have complete program information and will tell you the most effective ways of presenting your

material on camera. In the studio he can help you. *Please*, no last-minute changes of content or material. Follow his instructions to the letter. On the air he's the boss!

5. Try to go to your producer-director ahead of time with your problems. With technical problems, he can advise you; it is he who is the alter ego of your audience; his concept of your lesson mirrors it for the classrooms; his cameras are the student's eyes. You two are a team.

We point out to our teachers that television is not a magic monster that *transforms* people and material. It is simply an electronic tool to throw their image and sound a great distance—a tool that only mirrors what is put in front of it. The *lesson* must be of quality to produce quality television lessons—and quality learning.

WHY BECOME A BROADCAST TEACHER?

Some teachers have told me when I have asked them to audition for TV teaching: "I, teach on television? Are you out of your mind? Why should I ask for trouble?" You cannot argue with them, for a TV teacher today is creating more work for himself and will not receive any more income for his extra efforts. In New York State, television teachers are detached from their classroom duties when they are broadcasting, but they still receive their regular rate of pay—and this is the conventional practice. Eventually, in a few years, the broadcast teacher will be recognized as a superior teacher, and for performing this difficult job in

front of the cameras he will receive more compensation. The best TV teachers will be able to demand and receive higher incomes.

And how much *more* work is it for the television teacher? Most of the teachers on our project spend from nine to fourteen hours of preparation for each 30-minute telecast.

Why, then, should a teacher want to teach over television? Because it is a challenge. A challenge to him, personally, and to education in general. Most teachers are dedicated persons; they have a real desire to improve the student's learning experience, and they see an exciting new educational tool in television that will extend the scope of the ordinary classroom. Astute teachers of today see that educational television will deliver us from the limitations of mediocre and provincial teaching, and will give us enrichment courses of content, and will present new, stimulating visual techniques. They realize that they must

embrace television teaching, for it will allow the *best* teachers to teach more information, faster, and to more students—and, most important, to teach in such a manner that the students of tomorrow will get more understanding and will retain the information longer.

Teachers want to learn how to use TV, and they want to be a part of this new educational development that promises to be so widespread and important. And they want to raise their own teacher status, and they want the higher monetary rewards that will be forthcoming. And all teachers who have taught over the New York State Regents Television Project, and who have left, have told us that because of their teaching over the air, they have had the most exciting teaching experience of their career—and they have become vastly improved classroom teachers because of the TV experience.

An Apology—

to Mr. W. Robert Houston, co-author of the article, "Project: Mathematics," which appeared in the March-April issue. His name was inadvertently omitted. Mr. Houston is a research associate at the University of Texas and worked on the article with Mr. Hugh Greene, TV production supervisor at the university.

Book Reviews

Freedom and Communications. By Dan Lacy, University of Illinois Press, Urbana, 1961. 93 pages. \$3.00.

This book is a collection of the four 1959 Windsor Lectures of Mr. Lacy at the University of Illinois. It is in very attractive format, quickly and easily readable, and well deserves the attention of educational broadcasters.

Although he begins with a short historical review of the origin of print-based culture, Mr. Lacy loses no time in getting up to the present. He promptly puts communication in its proper context in social evolution: "We see that each of these leaps (of mankind) . . . to humanity, to civilization, and to the high culture of the classic era . . . was accomplished by an equally radical transformation of the system of communication."

It was print which enabled little Europe to leap-frog over Asia into a position of world leadership. The question which might be raised, though Mr. Lacy doesn't raise it, is: Which continents or nations will leap-frog into the positions of world domination in the *next* century? Africa? Communist China? Is it not likely, at least, to be a nation with no undue investment in anachronistic and outmoded hardware or forms of literacy?

Not long ago scientific discoveries lay unused for decades. Not so today. Instant application is the

rule. Their consequences "penetrate swiftly to every sector of life." The doctor's prescriptions today are for drugs not even known when he was a medical student. The economics of 1929, 1939, 1949, or even 1959 is daily proving inadequate for either business or international relations. "This rapid obsolescence of economic theory is fully matched in political and social theory."

"Our problem . . . will be solved . . . only by such a burst of social innovation as our society has never seen. One of our most urgent needs is to invite innovation, to encourage new thought, to seek out and welcome means of change." (I could not help wondering if revocation of Canon 315, under these conditions, was not so dangerous a step as to deserve careful re-study and legislative reconsideration.)

Policies today are dictated largely by pressures and pressure groups rather than by logic or evidence. "Television has added enormously to this pressure. On most important issues, public opinion . . . no matter how well or ill-informed . . . is now likely to be strong and clamorous, so much so that the freedom of action of those in authority is narrowly limited. Today it is most difficult . . . for the statesmen to be sufficiently flexible (for example)

toward Russia, to negotiate an easing of tension . . . (Yet) our governments today cannot be wiser than we are. . . . Wise policies are possible only to the extent that the public understands and will support them."

Here, then, is the problem: The body of knowledge we need to transmit without delay and without distortion is growing geometrically. It is of an increasingly high order of complexity. . . . In previous political systems, only an elite had to understand such difficult problems. "In the philosophical disorder of our times . . . it is important that our communications system be able to afford something more than the shallow and vacuous re-echoing of the forms of traditional beliefs. . . ."

The responsibility put on *us* as broadcasters, then, is plain: "College students now graduating will spend far more of their waking hours . . . listening to radio and television (and in reading) . . . than in any activity save maintaining a home or making a living. . . . How effectively they read and listen and watch will determine the usefulness of their work, the rightness of their political decisions, and even the maintenance of their own integrity. Yet very little of our educational effort is devoted to training them to carry on this continuing self-education or even to convincing them that it is important."

Mr. Lacy discusses the role which books, magazines, and newspapers can and must play in this situation, of course. It is a large role. But by far the most critical one is that of

TV and radio.

Some 180 million Americans spend some $4\frac{1}{2}$ to 5 billion man-hours a week absorbing largely Hollywood and Madison Avenue values and ideas. The problem is more one of quality and concept than it is one of quantity, hardware, money, or other materials. They will come when needed.

That, in the inadequate "pattern of organization and support into which it stumbled," TV manages to do even as much as it does is a great wonder. The future demands hundreds of times more. It requires ETV, Toll-TV, the full development of UHF, and drastic modification of present programing and regulatory concepts, among other things, as Mr. Lacy sees it.

Print media can't begin to do the job. "There are not enough journals and they are not published fast enough to keep up with new research. . . . Standard bibliographical tools are being overwhelmed or are becoming impossibly large, expensive, and slow."

He calls on both foundations and the federal government for the help and resources needed. "Our national needs can be met only if the total resources of all research institutions . . . are considered as a single inter-linked national resource."

An excellent and challenging series of lectures. Recommended reading.

—HARRY J. SKORNIA

*Associate Professor of Radio
and Television
University of Illinois*

Control Techniques in Film Processing. Published by the Society of Motion Picture and Television Engineers, New York, 1960. 181 pages.

Control Techniques in Film Processing is an important book, although it is my opinion few NAEB members will attempt to read it and only a fraction of those will understand it. Nevertheless *Control Techniques* is a book some NAEB members do need to know about.

Anyone who is interested in the processing of motion picture films knows there isn't any textbook or handy technical reference to consult for information or guidance. Instead one must refer to articles—the first of which began appearing in the *Journal of the Society of Motion Picture Engineers* in 1916. By 1956 the *Journal of the* (now named) *Society of Motion Picture and Television Engineers* had published nearly three hundred articles on different technical aspects of motion picture film processing. Scattered in other periodicals were other articles on the same subject.

But the lack of a single comprehensive technical treatise and the obvious advantage to be had in bringing together hundreds of separate articles and laboratory reports was not the only reason for the appearance of *Control Techniques*.

In recent years an increasing number of educational, manufacturing, governmental agencies and television stations have seriously taken up working with motion pictures. Many of these activities have also installed equipment and have done their own processing, not always

with happy results. While the areas of responsibility of the producer-writer, director, and photographer are apparently recognized, the area of the film processor (and the film editor) are not very well known. The film processor is in an especially vulnerable position because of the almost complete ignorance concerning what he must have and what he can be expected to do. Additionally the film processor at a plant or university is under a quality pressure, as his product is judged by the consistently acceptable product of the commercial laboratories.

The combination of circumstances just recounted prompted the governors of the SMPTE to take official notice of the situation. Early in 1958 the governors appointed a blue-ribbon volunteer committee of experts to submit a report containing the basic facts of what was known about the processing of black-and-white motion picture films.

The special committee consisted of thirty-two members. Among them were scientists from Ansco, DuPont, and Eastman. Nationally known film-processing laboratories were represented by plant managers. Engineers from optical companies and manufacturers of film processing and measuring instruments completed the membership of the group. The committee was representative, knowledgeable, and, despite its size,

performed well as the late 1960 copy-right date on *Control Techniques* attests.

The book brings together in one volume most of the basic information on the theory, practice, and present-day quality-control techniques related to the processing of black-and-white motion picture film. *Control Techniques* can be regarded as a hopeful step toward reducing much of the technical haze which has tended to cloud the workings of a motion picture film laboratory. Further, it will be of assistance to any beleaguered institutional film-processing laboratory supervisor who probably has been made a scapegoat for cinematic sins not of his commission.

The beginning of the book considers the principles of film-process-

ing control. Next, it looks at the mechanical aspects, sensitometric processes, and chemical analysis and control. The final chapter presents a brief resume of "Economic Considerations in Establishing a Process Control System."

The Society of Motion Picture and Television Engineers is to be commended for organizing the group which did the research and wrote the report. Then to complete the job and emphasize the importance of the report, the Society underwrote the cost of publication and so made copies available for general sale.

— LEWIS V. PETERSON
*Producer and Supervisor,
Television-Motion Pictures
University of Illinois*

An Introduction to Research in Speech. By J. Jeffrey Auer. New York: Harper and Brothers, 1959. 244 pages. \$5.00.

Although J. Jeffrey Auer's excellent text was published in 1959, it seems particularly appropriate to analyze its implications as an introductory text to research at this time. As more and more emphasis is given to the administrative placing of course work and research in radio-television-mass communications in an institution of higher learning, this text and a consideration of the disciplines of public address and rhetoric seem to have special meaning for appraisal at this time.

If communications in a complicated society are indeed to be considered communications to a "mass";

if the media of radio and particularly television are to have impact and value in terms of the content which they communicate; if society is to remain free, and free to explore appeals and message content, then the methods which are used to achieve such an examination require constant evaluation.

One cannot doubt that opinion, reaction, and concern with both an academic program in the mass media and the applications of the media to commercial and educational broadcasting *do* concern the teacher, the administrator, and the educator in institutions of higher learning. And

if the applications of the media to problems that loom mountain-large are a concern, then the research examining these problems are no less a matter for concern.

Auer's organization and approach is a simple one, dividing his consideration of research into eight major parts.

Three of his sections deal specifically with "The Historical Method," "The Descriptive Method," and "The Experimental Method." It is the examination of the methodologies and the potential of these three methods that most probably will appeal to the student beginning his interest in research.

Auer sets the tone and approach that he will take in his first chapter. He titles this chapter "The Field of Speech." It is here that the author suggests an arbitrary designation of seven major areas of concern for the entire field of speech. Under the title for each area he gives concrete example titles of research in each area. Although one might quarrel with some of his selections in the areas of radio and television, these are representative and include recognized scholarly contributions to the major areas of radio-TV. Auer's dictum that "the field of speech (by implication, also radio and television) includes all areas of oral communication," may cause some anguish to the careful scholar, and a mental reservation on the part of the more hardy that this is a desirable outlook "had we but world enough and time" to investigate all such areas. Auer embraces the need for diversity into other subject areas to lend support and content, as well

as direction and interest to the seven broad categories and their subdivisions, as these are delineated in *Speech Monographs'* annual report on dissertations and theses.

Auer concludes his over-view of research with a statement that suggests a *raison d'être* for research in almost all areas of human and scholarly endeavor: There need not be unanimity of opinion concerning that which constitutes a profession or area of interest; there *does* need to be *unanimity of purpose*.

A major contribution of *Introduction to Research In Speech*, is Auer's well-planned dissection of what this writer deems appropriate to refer to as "the anatomy" of the research method. Auer first suggests that research may be studied as (1) a method, or "basic procedures and underlying principles," or, (2) research may be viewed in terms of "specialized style of performance and techniques," or, (3) research may be examined in "terms of instruments, or the particular tools and devices employed." The "techniques" and the "instruments" for each of the three methods of research examined in this volume (Historical, Descriptive, and Experimental), he diagnoses and exemplifies in three separate chapters. It is in his chapter titled "Types of Research Studies" that Auer describes, defines, and gives an example of each of the three methods.

Broadly, Auer sets the base of research: It must improve understanding; it is an inductive process of observation and investigation of a problem.

- *Historical Method*

What is the historical method? It is investigation of a problem resulting in the establishment of causations or probabilities. It is the study of a period, a person, or a phenomenon in human development.

- *Descriptive Method*

The author states that in adding to a body of knowledge it is necessary to start with the known, discovering and quantifying where possible, then interpreting and generalizing. This method is known as the descriptive or normative method of research. And if the cautious observer looks upon descriptive research as embodying elements of historical research, he cannot be too far wrong to note that in descriptive research, too, one studies conditions (existing rather than past), situations, or relationships in order "to discover or establish norms or standards."

However, the descriptive method, unlike the historical, does not stop with a consideration of "where we are," but advances to a "where should we be," or "what is best" level, and finally examines the question, "How shall we advance from norm to goal?"

- *Experimental Method*

The most lucid research method which aids the human being in making rational choices would appear to be the experimental method. The experimental method is a study of causal relationships. Basic to this method is the requisite that all essential factors in the experiment are

held constant with the exception of one (occasionally several) variable factor(s). But if the experimental method of research seems deceptively simple, Auer dispels any such misconception when he makes clear that the variable factor must be controlled or manipulated while other essential factors are held constant. Only the unwary would be foolish enough to leave such manipulation to unplanned chance.

The critic and analyst finds it no simple matter to quarrel with an introductory text. The author of every text of this kind lays himself open to one of several criticisms: either he has gone too far, not far enough, or the detail is too great or insufficient. These same criticisms could be made of Auer's fine text, too, depending upon the interest, direction, and fallibility of the reviewer.

One could easily say about a publication some two years old that the areas of radio and television research suggested are either no longer valid, or have been done or, are not clearly defined. But definition and minute examination are not the usual goals of an introductory text. If the critic and analyst has a contribution to make, perhaps this can best be made in the area of *additional* ideas and suggestions stimulated by the analysis of a text such as Auer's—ideas and suggestions not necessarily the concern of the author of such a text.

Suggested areas for radio-television research. There have been many excellent proposals for research studies in the areas of radio

and television. The committee that exists at the national level for the purpose of examining proposal suggestions under Title VII of the National Defense Education Act suggests that continuous thought and effort in measuring the potential of the media for many diverse learning experiences is being exhibited in many places in the United States.

Studies in learning effectiveness have been conducted for many years. Individual reports from groups and institutions are well-known to the reader. However, there can be no doubt that more needs to be known and more experimentation can take place to give us information and meaningful results in learning effectiveness studies for specific subject areas, at specific levels of learning. One new probe and effort in this direction is the recently completed experiment in the learning of French by television at the elementary level. This study was conducted by the Modern Language Project of Massachusetts, and the experimental design will undergo refinements for at least the second and third years of the project. But this is only one subject and only one level. The potential of language learning, through the use of radio and television, for all levels of education and for the adult in an expanding society is a rich and untouched field for both experimental and descriptive research.

Still in the realm of wild conjecture and too little researched information is the whole area of *studies in the impact of instruction by television with and without instructors*

at the receiving end. Although some fine experimental designs have shown the effectiveness of these methods of learning, there is still some question as to whether instructor or instructorless follow-up is most effective and for which subject areas, and at which levels of learning.

Although Robert Merton and others have made significant contributions to the area of *motivational-research* methodology, much remains to be done in refining and giving meaning to experimental designs which have motivational factors as their focus.

Little is known about the true motivational factors which prompt the adult student to take television courses for credit. The Chicago City Junior Colleges have been consistently active in investigative attempts in this area. Among the persistent questions related to adult learning by television the following are noted as occurring with some regularity: "Why do adults pursue a higher education for credit by taking courses by television? Is the taking of such courses determined by inter-personal, academic, or pure self-interest need? Why are some courses taken by adults which are non-credit courses? Is the personality of the television teachers, the course content, or the influence of the peer-group involved in such decisions?"

Auer several times suggests that there is a close relationship between speech and other disciplines. And since Auer regards radio and television as part of the speech discipline, the research student may extend this reasoning to mean that

there is a close relationship between radio-television research and the methodologies of the social sciences, the sciences, psychology, history, and the like.

For research purposes, the *inter-area relationship* suggested by Auer may be extended to include research in radio and television. However, some unexplored inter-area relationships remain to be investigated. On the basis of such investigation quite conceivably new attitudes, outlooks, and potential are available. For example, the projection of Leonard Bernstein's method, apparently successful in rousing interest in music where such interest did not formerly exist, might be extended to other art forms. Through the use of Bernstein's approach, and applying this method of explanation-demonstration to the building up of a new generation of theater-goer, quite conceivably "living theater" as an art form might be revived throughout the United States.

One may not leave the subject of inter-area research and its implication for the use of the mass media to change, upgrade, or alleviate problems common to a significant portion of the total population of the United States. Communication between persons and among peoples remains a dominant need in modern society. An estimated 3.4 per cent of the total population of the United States is *speech handicapped*. Thus, more than 6 million persons are in need of the kind of aid that will improve their communication potential in a world where 80 to 90 per cent of the waking hours of most

individuals is based upon the need for oral communication. Could this aid not be rendered through the medium of television?

Nor may one leave the consideration of necessary research in radio and television without some consideration of the potential of the media to contribute to the advancement of a much-neglected portion of our population, the "talented" or "gifted" child. Can the media contribute to the development of these potential leaders of the future? What effect upon the gifted could instructional broadcasts have if the objectives of the broadcasts were "enrichment," "supplementation," or the introduction of new subject areas?

Above all, is there not a need for radio and television research to provide insights into the shortcomings, abuses, misuse, and lack of use of the mass media to resolve group conflicts on a national and international scale?

Certainly, the *language* of communication needs much more investigative research. Certainly, as Auer suggests, the methodologies that he describes are basic, necessary, and need to be understood as an "Introduction." Perhaps it is not too much to expect that consistently upgraded, probing, and intelligent research may "improve understanding" by moving the apparently immutable mountain of international misunderstanding.

— BERNARR COOPER
Associate Professor of Speech
Florida State University

What Price Glory?

Author warns that now is the time to set professional itv standards

How many times have we heard the "town criers" tell us that the road to an alert and informed public and enlightened and eager children is along the shaft of flickering light cast from our television screens? And that television is the magic key to the magic door to the magic chamber of intellectual salvation?

In fact, such a radiant picture has been painted that our educational system of the future would seem to hinge on the purchase of some sort of television equipment, the contract for means of conveying the signal, and the renovation of an unused room or building. In other words, once the screen lights up in that humble little classroom down the street, you're well on the way to successful educational television.

Nothing could be farther from the truth.

Any truly significant ITV project depends on the staff that supervises, produces, and directs the programs. The selection and utilization of this staff is extremely important.

But what is the pattern for selection in the ITV projects that dot the land today? Well, I'm afraid that

it's directly related to the emphasis these projects place on production.

By John K. MacKenzie

Producer-director of instructional television for the Anaheim CCTV project, Anaheim, California.

And that emphasis, in most cases, is pitifully small. Most of those who control these projects seem to feel that the very presence of a teacher of high calibre practically guarantees a telelesson of equally high calibre. This is just not so.

It is my firm conviction that unimaginative, slipshod production can significantly lessen the effectiveness of any lesson—no matter how good the teacher is. In fact, I'd go so far as to say that you could count on the fingers of one hand the teachers able to *independently* organize, write, and produce a truly excellent

telelesson. The term "master teacher" is, by its very definition, one that can be realistically applied to only an extremely small percentage of the teaching profession. On the other hand, there are many excellent teachers who, in collaboration with excellent producers and directors, could form a kind of tripartite answer to this shortage of "master teachers." It stands to reason then that if ITV is to be as successful as we know it can be, its producers and directors must be of the highest calibre.

But let's stop for a minute and examine today's production staffs. Where do they come from? What are their backgrounds? Who are they? Too many of them are high-school students, former teachers, A-V technicians, electrical engineering students—anything but *trained, professional* broadcasters. Understandably, they are a reflection of the value that school boards and district superintendents place on production. It is indeed to the credit of the amazing medium of television plus many diligent and hard-working teachers that the quality of our current output is as good as it is. It is in *spite* of these quasi-production people and not *because* of them that we can at least point with a little pride to ITV today.

But what of the future? What will happen when the school leaders realize that top production people are the key to quality? What will happen when the call goes out over the land for highly skilled *professionals*? I'm afraid that if the present trend continues, that call may go

unheeded. For when the rude awakening does come, ITV projects across the country will find themselves walled-in with mediocrity. Will the production managers (themselves a product of this mediocrity) jeopardize their own positions by hiring skilled professionals? Will the top producers and directors agree to work under "titled" laymen?

And what of salaries? It stands to reason that when educators start demanding quality broadcasters, they're going to have to pay for them—and pay a good price. What type of wage offers will be made? What salary schedules will they operate under? To help us answer that one, we'll need to understand current pay practices.

The pattern today is to incorporate (perhaps "lump" is a better word) production people in with the already established salary schedules for teachers, curriculum consultants, supervisors, and even custodians. This is just not realistic. Because we agree on a marriage of education and broadcasting on an ideological level is no sign we should accept such a marriage of their wage levels.

If we are to separate educators and broadcasters into two distinct but cooperative professions, as they rightfully should be, then the separation will have to be complete. This, of necessity, involves an entirely separate pay schedule for the two of them. It must be firmly impressed on school boards and superintendents that they'll never get a quality production staff with current pay practices. Let's face it, no

skilled professional can be expected to leave a \$10,000-a-year job to accept one of equal title for half the money.

Today's failure to emphasize the importance of production in the scheme of ITV will have killed the hopes of hiring the artisans needed tomorrow. And you can forget about those in the field today growing with experience, for all the on-the-job training in the world won't make silk purses out of the sow's ears that infest our profession. The title "Producer" or "Director of Instructional Television" should be an honored and sought-after position, won only after hard work, long study, and proven worth. These are the criteria in commercial broadcasting. Should educators settle for any less? Can they afford to settle for any less!

Any hope for real stature for the profession of educational broadcasting lies in an active and organized fight for a complete re-evaluation of the emphasis on production in ITV today. We have only to consult our history books; the sad truth stares back at us. The neglect of production in educational radio contributed heavily to its failure as an effective tool for improving the quality of American education.

Television is offering the educators another chance—another hope—for significantly increasing the efficiency and the effectiveness of education. Will history repeat itself? I sincerely hope not.

But what can be done? I would propose that the N.A.E.B. and any other interested bodies form a group to study and evaluate the present state of the profession, with an eye to evolving the following standards:

1. A definite set of job titles for the echelons of production personnel.
2. Job descriptions for each of these titles.
3. Minimum requirements for attaining each of these echelons.
4. Minimum pay requirements for each echelon.

And above all—

5. A workable plan for educating the educators to the real role of production in instructional television.

In closing, I would issue a warning. I would advise you that if we do not start immediately toward building the professional stature of broadcasters in ITV, any semblance of quality in our field will be lost.

Frame and Focus

with Vernon Bronson

I have been extremely concerned with some of the values, and some of the understandings which have been allowed to develop in regard to broadcast media. One of the things which has bothered me increasingly is the accepted attitude on what constitutes the "public interest" in the "public interest, convenience and necessity" requirement of the law.

In conversation with one eminent radio attorney I was told that the public interest is whatever the majority of the Federal Communications Commission may happen to say it is. I'm sure that in most cases this is legally and practically true. But it goes deeper than that, and is considerably more complex. Such decisions are made on the basis of many different judgment values, precedents, and customs. Generally, they tend to be different in each different case, but certain main threads seem to be apparent in most such considerations.

There is the tendency to refer to the combination of population areas and broadcast coverage as "markets." This reference immediately proceeds to a concern for the proper coverage of the "market." Do all sellers of merchandise, all potential advertisers, have equal access to the market, or at least sufficient access?

Are all of the commercial networks served?

This approach, of course, immediately equates public interest with merchandising, and private commercial interest with public convenience and necessity. This is a profoundly distorted view, if we are agreed that the airwaves belong to the people, and that the use of any part of them is a privilege, conferred only on those who are deemed to be able and willing to use them for the public good. It is my understanding that we are so agreed, and that this is the law. But in practice we have allowed the reverse attitude to develop.

Because a strong emotional plea was made for the inchoate needs of education in 1951-52 a small portion of the television area of the spectrum was reserved for noncommercial educational purposes. These frequencies were not reserved permanently, and they were reserved only after all other major interests were served.

Theoretically, all unreserved television or radio frequencies are in the public domain, and any applicant who meets the basic requirements of character and resources, and who can present program plans compatible with the public interest, convenience, and necessity, may lay competitive claim to the use of such frequencies. But in practice we have developed the attitude that unreserved frequencies are per se "com-

mercial" frequencies or "commercial" channels.

It is true that a radio frequency or a TV channel may, by rule-making procedure, be reserved for a specific purpose; but it is equally true that all frequencies not so reserved have no specific use until they are assigned and licensed. Such use could be either commercial, educational, or a combination of both if it were so desired. It seems to be high time we, as professional educational broadcasters, started reversing some of the attitudes by proper references. An unassigned channel or frequency, not reserved, is a *nonreserved* channel.

The relative value of a program service ought to be determined by the extent to which it meets, or plans to meet, the needs of the community. Such an appraisal cannot be made by calling a community a market. A community is made up of people, people with a variety of common interests and needs. A market within the community is one of the common needs, but people do not live by bread and soap alone. All communities of people have a variety of needs, and interests. We, as professional educational broadcasters, have a responsibility to help re-define program service, and standards of evaluation.

It has been suggested that there is no good reason for every available radio or TV frequency in a community to be assigned for broadcast operation unless a demonstrated public need and interest is being served. The multiplication of operating frequencies, and duplication of

program services, just because somebody wants to go into business, can hardly be considered as being profoundly in the public interest.

The principle of a program service being considered in terms of its basic values and potential for the public good, when such a service is in competition for frequencies in the public domain, is fundamental to the health of the broadcast services. This principle is also becoming increasingly vital to educational broadcasting as the service extends and the urgency for multiple channel use increases.

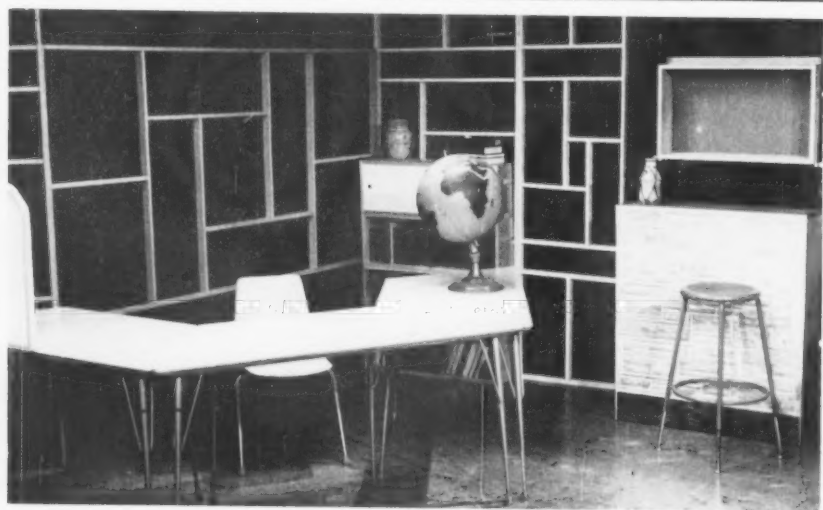
Educators must be able to compete for nonreserved TV channels and radio frequencies not on the basis of whether a third network has an outlet or whether the "market" is being served, but whether the community need and good are being served by the assignment.

The first trend in this direction was indicated in February of this year when the FCC ruled that educational television station WHYY, which is competing with several commercial interests for Channel 12 in Wilmington, Delaware, should be afforded an opportunity to show that the area being served has need for a specific type of programing, that the need is not now being met, and that WHYY's program service would meet the need better than that proposed by the commercial applicants.

It is true, this ruling was only a step in the right direction. It didn't establish any criteria or even evaluate criteria proposed by the educators; but it did open the door for a more mature and reasonable ap-

proach to competitive evaluation of program services. To meet the emerging need of the national community this principle will have to be applied and enlarged upon many times in the months and years ahead.

Educational broadcasters should be thinking in these terms now. We should not let our service be inhibited or retarded by the weed-like growth and development of erroneous attitudes.



Above, a typical instructional TV stage set at KNME-TV uses trapezoidal tables, fiber glass stacking chairs, a bookshelf-cabinet unit against a background of open-work frame units. Below, a lecture-discussion set is composed of a space divider used as a display area, with the open-frame units holding graphics displayed against a dark drape background.



Notes on Staging For Small Studios

Are you faced with the problem of a one-studio operation, back-to-back live programing, lack of storage space, and limited funds for settings and properties? If you have already discovered the utility and versatility of space staging using suspension-pole supports and free-standing set units together with Brunswick-type classroom furnishings and "modulwall" elements—read no further. If you haven't and are still searching for new ways to solve your studio time-and-space problems, the following hints may prove of interest.

In order to conserve what little storage space was available at KNME-TV, we resorted to the following:

- Furniture that could be used for a variety of purposes, that could be stacked easily (without damage to the pieces), that was of compatible design and no bulkier than absolutely necessary for its intended uses.
- Solid flats constructed of cellotex mounted on 1" x 2" frames and finished with different surfaces (on both sides), open-work frame units constructed in varying designs of 1" x 2" lumber to be used in either vertical or horizontal positions. (The frame units can also be modified by

adding cardboard panels, split bamboo, burlap, and other coverings.)

By **Thomas B. Petry**

Production manager, WQED, Pittsburgh. Formerly program manager for KNME-TV, Albuquerque. Photos by Karl Kernberger.

- Free standing (or suspension-pole mounted) space dividers to be used horizontally or vertically as bookshelves, display areas, utility cabinets, or as support for graphics, rear-projection screens, maps, or incidental decor items.
- Miscellaneous display and set pieces that can easily be dismantled, folded together, and stored; these are usually designed to be used on both sides for varying purposes.

In order to cut down on setup time the most important considerations seemed to be weight, mobility, and support. Therefore we decided to:

- Select furniture, props, display units, and flats constructed of the lightest materials possible without



Typical instructional set using "modulwall" elements—all mounted on suspension poles. "Modulwall" units and furniture, courtesy of John Barnes Co., Albuquerque and Brunswick; map courtesy of Denoyer-Geppert Co., Chicago.

sacrificing durability and strength. (We have found that the Brunswick school furnishings and "modulwall" units are admirably suited for even the roughest studio usage.)

- Use as many free-standing units as possible and support the rest by adapted suspension poles (eliminating the need for stage braces and weights, lash lines, c-clamps and nails). The open-work frame units can be made self-supporting merely by standing them at slight angles to each other, fastened together by $\frac{1}{2}$ " tacker staples.

- Use casters or furniture gliders on as many set items as possible to increase mobility.

- Design sets in such a way that quick changes can be made merely by reversing the flats, or other set and display pieces, by rearranging the furniture with minor substitutions, by varying the background (e.g., from limbo to plain cyclorama, to draperies of different shades, together with projected patterns, etc.) preferably within pre-set lighted areas.

- Whenever possible mark the studio floor to indicate exact positions of furniture and flats for programs that require fast or complicated set changes.

Using these expedients we have found that we can achieve a reasonable variety of settings with a minimum of initial outlay, maintenance, studio space, and setup time. The important consideration was that all the furniture and set pieces should be compatible and serve multiple purposes merely by being placed in different relationships, turned around, upside down, or shifted from a horizontal to a vertical position. In most instances the effect can be radically changed by varying the backgrounds and lighting effects. Used in imaginative combinations and granted adequate planning on the part of the director the possibilities for new and attractive sets proved to be limitless.

The only innovation (I believe) which we have made is to use the suspension poles with mounting clamps to support the Brunswick

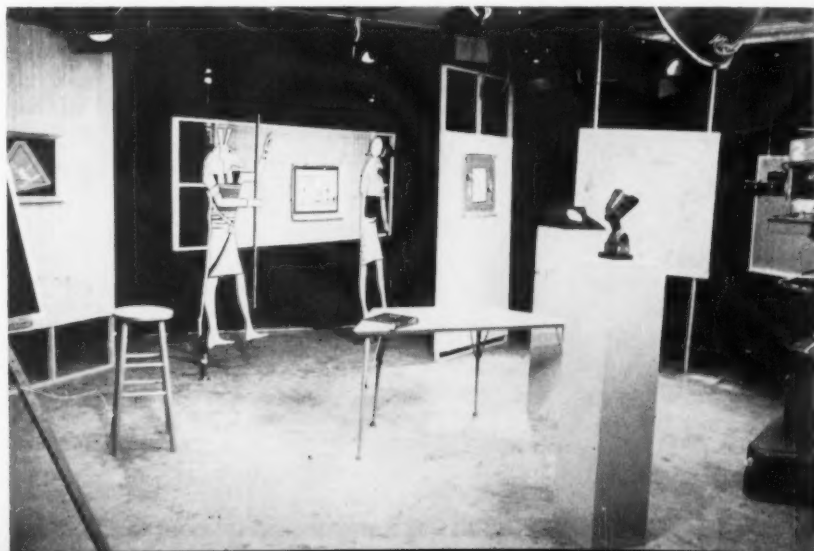
"modulwall" units (used chiefly for instructional, lecture, and panel programs). A fairly complete line of these display and utility units together with the school furniture have been on loan to KNME-TV through the courtesy of the John Barnes Co. of Albuquerque in order to test their adaptability to a TV situation. In a very short time we found them to be indispensable. Their design is clean and simple (and they can be easily integrated with inexpensive set units of station design). Both the furniture and the "modulwall" is practically indestructible, light in weight, finished in colors ideal for TV and easily stored. The "modulwall" items were designed to be easily interchangeable in the classroom (the panels hook to aluminum standards mounted on the wall) and they are even more so when mounted on suspension poles which allow for maximum flexibility

and quick changes and adjustments. Such "modulwall" units as the TV green steel chalk-and-magnet board, pegboards, tackboards, flannel boards, inclined easels, open and box type bookshelves and magazine racks, wall cabinets, map holders, and utility rails, quickly become the mainstay for any number of instructional, lecture, and panel-type program sets.

Many of these units can be pre-set off stage and then quickly shifted into place when needed; backlighting instruments can be attached directly to the poles and all of the items mentioned can be adjusted as to height to suit both the talent and the lighting technician in a matter of seconds.

I am sure that I have mentioned only a few of the possible uses and virtues of these production units but each station will, of course, discover further variations.

Anthropology set, composed of frame units partially covered with bamboo screens supported by suspension poles.



K71AU

Utah's 10-watt educational translator station

K71AU is an ETV station operated by the University of Utah to provide campus distribution of the university's curricula. Operating under program test authority on Channel 71 with an effective radiated power of 10.6 watts, the station serves an area of nearly 150 square miles. This coverage is obtained with transmission equipment valued at \$5,914.

Activation of K71AU was made possible by using a television channel assigned to translator operation, and by using a little engineering ingenuity to combine a single-channel, crystal-controlled, Monitran with a VHF to UHF translator to develop a 10-watt television transmitter. Special permission was obtained from the Federal Communications Commission to originate programs on the translator which operates as a 10-watt television transmitter.

With the activation of K74AY the University of Utah will be the first college campus with *three* educational television stations. Three television programs can be telecast simultaneously—one program

over KUED operating on Channel 7 with an effective radiated power

By H. W. Holtshouser

Chief engineer, radio and television services, University of Utah.

of 27.5 kilowatts, one over K71AU operating on Channel 71 with an effective radiated power of 10.6 watts, and one over K74AY operating on Channel 74 with an effective radiated power of 55 watts. KUED provides coverage of nearly 80 per cent of the population of the state of Utah; K71AU and K74AY provide coverage of the Salt Lake Valley with an estimated population of nearly 300,000.

WHEN MAY ONE OBTAIN APPROVAL TO ACTIVATE A SIMILAR STATION?

This is a question which cannot be answered at the present time;

however, with the consideration being given to the more efficient utilization of the UHF frequencies, it is possible that favorable action may be taken this year. Some of the factors which could favorably influence the Rules and Standards Division of the Federal Communications Commission are as follows:

- There is a definite need in the educational television field for a low-cost, limited-coverage, television transmission system.
- The possibility of interference to other services is reduced when the effective radiated power is less than 100 watts.
- Operation on the upper UHF frequencies reduces the possibility of harmonic interference to other services.
- This system uses a translator which has been type approved for operation at low power on the upper UHF channels.
- The present rules authorize translator operation on television channels 70 through 83. By alternating channel assignments to provide an interference guard band of one channel between any two active channels, seven stations could be activated within the same coverage area. Under these conditions thousands of low-power ETV stations could be activated within the continental United States. This would provide for a more efficient utilization of these upper UHF frequencies.



This photograph shows the transmitter in the foreground; the three vidicon camera console, the audio and equipment rack are shown in the background. The off-the-air monitor shows the opening title card of Geography I, an accredited course which is telecast live over K7IAU. The studio facilities consist of two industrial-type vidicon camera chains for live studio pickup, and an industrial-type vidicon camera for film and slides. All of the studio equipment and the 10-watt transmission facility are priced less than a single 100-watt transmission facility.

APPLICATIONS

Field strength measurements around the Salt Lake Valley indicate that pictures of acceptable quality are received at a distance of 10 miles from the transmitter. Local terrain conditions limit the coverage to about 150 square miles. Under ideal conditions this same power could provide television service to an area of over 300 square miles. This ideal condition is one in which the transmitter is

centrally located, and where the height of the transmitting antenna would provide line of sight to every receiving location.

This coverage, rather limited when compared with the coverage of a high-power station, is large enough to offer some interesting possibilities for:

- Licensees of ETV stations who are interested in in-school programming within a limited area, at a cost far less than the operating costs of normal stations.
- Those interested in activating an ETV station which may be concerned with in-school programming within a limited area.
- Those groups now engaged in closed-circuit applications of ETV which wish to expand their system beyond the means of available budgets.
- State departments of public instruction or school districts interested in providing ETV facilities within the individual school district, and interconnecting these facilities to provide regional and state-wide facilities.

While the first three categories are more or less self-explanatory the fourth offers some interesting possibilities.

STATE-WIDE ETV FOR IN-SCHOOL PROGRAMING

With the possibility of legislation by the present administration to provide funds for state-wide ETV facilities, educators will be concerned with the problem of providing transmission facilities which

will not only meet their requirements but be within available budgets. Favorable action by the Federal Communications Commission approving low-power transmission of television signals for educational purposes, could fill a very great need of regional and state-wide systems.

To obtain maximum benefits of money, teaching talents, and studio facilities, the state-wide educational television system should accomplish the following objectives:

1. Provide a closed-circuit-cable system and a master antenna system in each school which is to originate programs.
2. Provide a master antenna system in each school.
3. Provide a means of sharing programs with other originating schools in the *same* district.
4. Provide a means of sharing programs with other originating schools in *adjacent* school districts.
5. Provide service to a maximum number of school districts within the state.
6. Provide a maximum number of television channels to facilitate program arrangement and to provide facilities for simultaneous transmission of several subjects.

It is not within the scope of this article to consider the requirements of studio and pick-up facilities; however, a consideration of some of the requirements of the state-wide transmission system will show the need for a low-power station.

The term "state-wide educational television" immediately brings to mind simultaneous participation by all schools within the state. This

type of system could be more costly and perhaps less efficient than simultaneous transmissions within more limited areas.

This suggests two or more systems within the state which may not be interconnected. By proper arrangement of programing and pre-recording, these several districts could share programs by bicycling film and/or videotape.

Local conditions of terrain, population distribution, school locations, and funds will have to be considered when selecting a state-wide system; however, the adequacy and cost of the over-all system will depend upon the selection and combination of the following classes of television services:

1. Closed-circuit cable system and/or master antenna system.
2. A 60-watt television station using a 10-watt transmitter.
3. A 600-watt television station using a 100-watt transmitter.
4. A 6,000-watt television station using a 1,000-watt transmitter.
5. A 72,000-watt television station using a 12,000-watt transmitter.
6. A 140,000-watt television station using a 23,500-watt transmitter.

The closed-circuit cable system and/or master antenna system is used in each school to provide service to the television classrooms. Schools which serve as origination points require a combined system, but non-originating schools use a master antenna system only.

The other five classifications are all on-the-air types of transmission

systems arranged according to increasing cost and coverage capacity.

Estimated transmission equipment costs for these five classifications of television stations are as follows:

1. Transmission equipment rated at 10 watts costs \$6,000.
2. Transmission equipment rated at 100 watts costs \$40,000.
3. Transmission equipment rated at 1,000 watts costs \$63,000.
4. Transmission equipment rated at 12,000 watts costs \$145,000.
5. Transmission equipment rated at 23,500 watts costs \$175,000.

The greatest price differential is between 10-watt equipment and 100-watt equipment. Because of this price differential seven 10-watt facilities cost about the same as one 100-watt facility. This means that in areas of dense population the low-power facility costs less per student.

Using known facts and figures for the Salt Lake City area, and adding conservative estimates for unknown factors, we can obtain some comparative figures for the five classes of television stations. The following figures compare costs of *transmission equipment only*. Buildings, installations, operation, and maintenance are not included.

- A 10-watt transmitter operating at 60 watts effective radiated power could serve an in-school enrollment of 82,000 students. At a cost of \$6,000, this represents a cost of 7.3c per student.
- A 100-watt transmitter operating at 600 watts effective radiated

power could serve an in-school enrollment of 126,000 students. At a cost of \$40,000, this represents a cost of 31.7c per student.

- A 1000-watt transmitter operating at 6,000 watts effective radiated power could serve an in-school enrollment of 154,000 students. At a cost of \$63,000, this represents a cost of 40.9c per student.
- A 12,000-watt transmitter operating at 72,000 watts could serve an in-school enrollment of 180,000 students. At a cost of \$145,000, this represents a cost of 80.6c per student.
- A 23,500-watt transmitter operating at 140,000 watts effective radiated power could serve an in-school enrollment of 180,000 students. At a cost of \$175,000, this represents a cost of 97.2c per student.

Because of terrain conditions in the state of Utah the increase in effective radiated power from 72,000 watts to 140,000 watts does not increase the number of students served. This increase in power does increase the coverage area of the station but other re-transmission systems must be used to serve shadow areas.

It is estimated that a system which would provide a single program service to every student in the state would involve an equipment cost of more than \$2.50 per student. This system would operate on the principle of high power to provide major coverage, with re-transmission facilities to cover the shadow areas. It would provide simultaneous participation by all schools, but would not provide for more than one program origination point.

Favorable action by the Federal Communications Commission authorizing the use of 10-watt television transmitters for educational purposes would provide a more efficient and less costly system.

A network of five 10-watt transmitters strategically located in the school districts of Davis, Salt Lake, Granite, Murray, and Jordan would provide service to an in-school enrollment of 106,492 students with an equipment cost of \$30,000. This represents a cost of 28c per student. Each school district could originate programs and all districts could share programs.

Results comparable to these should be possible in the major population areas of every state.

A Glance at ITV Research

Says tv good

in cognitive and psychomotor domains

Since the early 1950's a great deal of experimental research has been done on instructional television in higher education. This research has been corroborated sufficiently to permit the tentative evaluation of the effectiveness of instructional television as a teaching medium.

In the search for a model for evaluation of educational objectives, the writer turned to the work of the committee of college and university examiners.¹ This committee has spent over ten years in developing a taxonomy of educational objectives.

Bloom and his associates, in their original plan, conceived three major parts to the complete taxonomy. The first was the cognitive domain that included those objectives which deal with the recognition or recall of knowledge [information] and the development of intellectual abilities and intellectual skills. A second part of the taxonomy was the affective

domain, which included educational objectives described under such

By **Harold Niven, Jr.**

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terms as interest, appreciation, attitudes, values, and adjustment. The third domain was the psychomotor domain, which is the manipulative or motor-skill area.

The instructional television research that is considered here was evaluated in terms of the cognitive domain and the psychomotor domain. There has been little or no research done that has been concerned with the educational objectives included in the affective domain: appreciation, values, interest, and judgment.

The instructional television research that has been done to date

¹ Benjamin S. Bloom (ed.), Max D. Engelhart, Edward J. Furst, Walker H. Hill, and David R. Krathwohl, *Taxonomy of Educational Objectives*, New York: Longmans, Green and Co., 1956.

has been largely at the basic level of subject-matter information or knowledge. It is natural that the majority of the research in colleges and universities has dealt with the attempt to determine the achievement, or the extent of learning and retention of information presented by television instruction because it is probable that the most common educational objective in higher education is the acquisition of knowledge or information. Bloom and associates state very succinctly that as a result of completing a course or class, there is a desire that the student will be changed with respect to the amount and kind of knowledge he possesses.

For some classes or courses, factual knowledge is almost the sole or primary educational objective, and college courses that have been taught through instructional television have been, for the most part, introductory or survey courses where the primary objective is the presentation of knowledge. In the more advanced courses, knowledge is a necessary objective. Knowledge is the basis for the more complex categories of which these courses often consist: comprehension, where the emphasis is on the grasp of meanings or intent of the material; application, with the emphasis on remembering and bringing to bear upon the given materials the appropriate generalizations or principles; analysis, which emphasizes the breakdown of the material into its constituent parts and the detection of the relationship of the parts and the way they are organized; synthesis, the putting together

of elements and parts to form a whole; and evaluation, the making of judgments about the value, for some purpose, of ideas, works, solutions, methods, and materials. These categories comprise the educational objectives of the cognitive domain that lead to the development of intellectual abilities and skills.

Probably instructional television will seldom be used to present complex advanced courses involving more than just the teaching of facts. Present research has not conclusively demonstrated that such courses have been taught with complete success by television. Consequently, there is still some doubt as to its potential utilization for these courses.

RESEARCH

The research findings comparing the effectiveness of instructional television with other methods of instruction are the best documented of all the research done on television. In considering television as a potential method of instruction, educators are concerned with its effectiveness as a method of teaching in comparison with conventional methods of teaching that are considered successful in disseminating knowledge.

Using the teaching of knowledge as a criterion for evaluation, studies of instructional TV used in higher education are usually reported in terms of whether there was less, as much, or more, informational learning on the part of students taught by

TV when compared with students taught by conventional methods.

The area that is important is the area of "beginning courses"—those with large enrollments and which are primarily concerned with teaching information.

In considering TV as a medium for instruction, it is important to recognize that, like other materials and media of instruction, it has certain unique values and limitations. Its uses in higher education must capitalize on values and take account of limitations. Television, like films, radio, recordings, books, maps, and models, is a tool of instruction.

WRITER'S CONCLUSIONS

Other more specific conclusions reached by the writer are as follows:

1. The appraisal of television is justified in that higher education depends so heavily on communication—oral and printed—that it cannot afford to refuse to examine any new means for meeting educational needs.

2. Televised instruction may become a valuable teaching tool in higher education dependent upon its pertinence to learning needs and upon application. The nature of learning through television is essentially the same as learning through any other medium. This implies that TV must be adapted to the learner, rather than that the nature of learning be modified to fit the characteristics of the medium.

3. Television has tremendous potential in bringing to the classroom

a variety of cultural and aesthetic resources not otherwise available in many instances. These experiences may motivate learning, stimulate creative activity, provide a common background of information, and promote problem-solving and critical thinking as parts of the enriching process. These experiences may also contribute to the building of desirable attitudes not only toward learning itself, but also toward the realization of personal and social goals.

4. The importance of good intercommunication between the TV teacher and his students is most vital to the success of instructional television in higher education. This intercommunication is found in two forms: (a) Feedback between the teacher and the student so the instructor can determine response and how the information he is presenting is received. (b) Intercommunication between the teacher and the student as a part of the total teaching-learning process for the purpose of clarification, and practice through such methods as discussion, and drill recitation. This is an area that needs additional and continual investigation to insure the optimum results in learning from instructional TV.

5. The teacher is concerned in that he wants to know whether the results obtained are really comparable to regular instruction, to know that the basic educational values obtained in face-to-face teaching are not lost, and that in instructional television professional standards are maintained. He wants to know the effect of instructional TV upon his professional growth and the degree

to which it may be of help in attaining his teaching goals.

6. Except for features peculiar to the television-originating classroom, teaching through television is similar to teaching by conventional classroom methods, for the general principles of good teaching still apply.

7. The instructor who does a good job of teaching in the classroom and is "compatible" to TV can quickly accustom himself to the extra details involved in TV teaching.

8. The outstanding teacher often does an even more effective job of teaching in the instructional TV situation. He tends to time his lessons more precisely, choose his vocabulary more carefully, eliminate extraneous material, and attempt to enrich the lessons with more details and material.

9. As in the case of classroom teaching, TV teaching to be effective should be clear and direct. Extraneous or filler material should be avoided. It can be generally concluded that the informal and extemporaneous presentation of the lesson results in the best television instruction.

10. The general attitude of faculties of institutions of higher education toward the use of television as a teaching medium is generally one of skepticism. As instructors begin to participate in instructional TV—and its advantages, shortcomings, and place in education are defined through research and experience—their attitudes begin to change to those of acceptance.

11. Students prefer conventionally taught small classes rather than

television-taught small classes. However, students will enroll in television classes in preference to conventional classes if this assures them of an instructor of known excellence. Given a choice between learning by television in a small classroom and learning directly from an instructor in a large classroom, students are about evenly divided as to preference.

12. Student attitude does not yet affect achievement. Students who have reported a negative attitude toward instructional television do as well as students who favor it.

13. Instructional TV affords benefits to college and university students in at least three primary areas: First, all students can have access by television to the best teachers available in the institution of higher education, as part of the schooling experience; second, the stimulus of a new face and personality and of fresh approaches to subject matter through the medium of television enliven students' interest and enrich their learning; and finally, on television, "back-row" students enjoy clear vision with those up front.

The general conclusion that can be reached is that television is an effective teaching medium for the presentation of knowledge or information and psychomotor skills. When instructional television is compared with conventional methods of instruction, there is no significant difference in information learning measured by tests systematically administered and analyzed. Therefore, it can be concluded that televised

instruction is as effective a method as conventional instruction for teaching introductory or elementary courses, for which the purpose is the presentation of basic knowledge or information, and courses that con-

sist of the learning of psychomotor skills. In light of this conclusion I feel that instructional TV, systematically used, can become an integral part of higher education as a medium of teaching.

Letters to the Editor

International Issue

Your *NAEB Journal* for July-August, 1960, is quite interesting, and we should like to have our staff read some of the articles. We should, therefore, feel grateful if you would kindly permit us to translate the following articles to be inserted in our semi-annual bulletin called "Kaigai Joho" which is to be issued in March, 1961. We make about 800 copies of the bulletin and most of them are distributed to our staff and a small portion is given free of charge to public libraries, universities and commercial broadcasting organizations:

"Is the Public Responsible for Broadcasting Ills?"
"Television and International Understanding"
"Cultural Exchange and the United States"
"Electronic Media in the Soviet Union"
"Space Satellite Broadcasting"
"ETV Opportunities Abroad Through USIA"
"RFE . . . Its Audience and Its Policies"

ICHIRO NIHIRA
Director

*Radio and Television Culture, Research Institute
Japan Broadcasting Corporation*

Compatibility in CCTV

--How Important Is It?

Authors examine the Ampex VR-8000 and videotape problems generally

We saw the new Ampex videotape machine, the VR-8000, when the prototype machine was demonstrated March 14, 1961, in Redwood City, California, at the Ampex Corporation. The picture appeared excellent. In theory, the picture quality is above that of the broadcast machine. The price is half what videotape recorders have cost before. Ampex is taking orders now for "delivery after the first of the year." Do we buy it? A good—and important—question.

For heaven's sake, why not go right out now and buy it? This is what we all have been waiting for. Now we can afford videotape and all its advantages . . . Not buying? Why not? What's the catch? The reason is quite basic: The machine—although capable of better quality—is incompatible. Let's take a look at the VR-8000.

COSTS LESS

It is claimed to be a half-cost machine, not only in initial outlay, but also in operating cost. The cost of head replacement is supposedly half.

The tape runs through the machine at half speed (7½ inches per second in the VR-8000 as compared with 15

By **Ken Winslow**
and **Rudy Bretz**

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inches per second in the VR-1000). Tape, therefore, will cost half as much for the same length of program. The machine is transistorized. Pull-out drawers for all components with plug-in circuit boards are used for "fast and easy maintenance"—if you stock the circuit boards. The entire machine is contained in a single console. It is considerably smaller than the VR-1000 or even the more compact VR-1001. There

are no additional racks of equipment. You save space, power consumption, and heat dissipation problems. But what about this incompatibility?

What yesterday was a relatively simple choice to make—if you had the money—now becomes vastly complicated. If you make a tape on a VR-8000, the only kind of machine you can possibly play it back on is the same or another VR-8000. This is what is meant by incompatibility. The VR-8000 is incompatible with broadcast and other videotape machine types. Yesterday it was simply a problem of getting funds to buy a videotape machine. Today and tomorrow, the real problem will be how, where, and when a particular videotape machine can be of use.

The tremendous confusion and misunderstanding rampant in the closed-circuit vidicon camera field today will be only a drop in the bucket compared to what is ahead with the coming possible disparity of standards in videotape recording for closed circuit. The May 8, 1961, issue of *Television Digest* (page 7) notes the announcement of closed-circuit recorders by Ampex, RCA, Sony, Telechrome and Japan Victor, and we could add Toshiba. The assumption (in the article) is that all these machines will be incompatible with broadcast machines and standards. The shattering note sounded is that all these machines will be incompatible *with each other*.

However, we have since learned, upon direct inquiry in Los Angeles, that the RCA "economy" model is

definitely compatible to the broadcast standard. We are told that it is being built in Los Angeles and will be ready in July. It will look essentially like the current RCA TRT 1B but it will occupy three racks instead of five. It will presumably turn out videotapes which can be used interchangeably with broadcast machines (RCA and Ampex). The RCA closed-circuit videotape machine price will be approximately half that of the broadcast model. It is achieved apparently by sacrificing everything but the "essentials"—and compatibility. The proof, of course, will be in the pudding.

We face in closed circuit, the prospect of three closed-circuit videotape recording and playback standards. This includes the present broadcast standard. The broadcasters, hewing to the engineering standards set by the Federal Communications Commission and backed by their own professional engineering staffs, and associations, were able to command and obtain quality, reliability, and compatibility in the development of videotape recording for the broadcast industry. But what about the educator in closed circuit? His business is not television. He views television as a tool—not as an end in itself.

If you now and in the future will *never* want to exchange videotapes with anyone, record anything for broadcast, or playback a tape made on a broadcast machine (or some other closed-circuit machine operating on still another standard), but only intend to record and playback on your one machine (or machines),

then compatibility is for you no problem.

But how many of us in educational television can be this sure of the limitations of our operation? As of right now you could use the VR-8000 to record broadcast standard television signals. This includes signals from a broadcast videotape recorder. But you cannot go the other way: You cannot take a signal from the VR-8000 and use it in broadcast or record it on a broadcast videotape recorder. This is a one-way street only.

With other closed-circuit machines and standards, the prospect is that the VR-8000 would be incompatible in *both* directions. The VR-8000 is said to be unsuitable for broadcast purposes: This is not because the picture is substandard. If anything the picture (as distinguished from the accompanying synchronization pulses) is better than that of the broadcast model. Why, then, if your institution is to have a regular or low-power television broadcast station can you not equip the station itself with a VR-8000? Your closed-circuit originations in the form of recordings could also be used for broadcast.

CANNOT EQUIP STATION WITH VR-8000

That is a good idea, but it will not work. The synchronizing pulses work to a different standard. The FCC has established laws governing the electrical standards of broadcast television. But even if it were not against the law to broadcast the signal from the VR-8000, and if it

were broadcast as it physically could be, home receivers would probably not be able to lock in on the non-standard synchronization pulses, and flicker, rolling, break-up and all the other problems we are so familiar with would result.

There are two main technical reasons why the VR-8000 recordings cannot be broadcast under FCC prescribed rules. First, the maximum allowable rate of horizontal frequency change is set within rigid limits by the FCC. The maximum limits of the rate of horizontal frequency change in the VR-8000 is almost twice that of the FCC allowable maximum. The second technical point which precludes broadcast is that by using a single head helical scan technique, there is some point at which the head must lose contact with the videotape; it must leave the top of the tape in order to begin a new scan at the bottom of the tape again. The FCC standard is that the head-to-tape contact must be maintained through at least 360 degrees. The VR-8000 helical scan technique provides only for a maximum head-to-tape contact of 354 degrees. In effect, the VR-8000 during vertical blanking drops out three television lines or five synchronization pulses. The FCC says that at no time shall there be a "hole" in the television signal. The television system used in the VR-8000 produces a 200 microsecond hole between transmitted pictures and is therefore unacceptable under the prescribed FCC rules.

PICTURE EXCELLENT

We want to stress that the television picture we viewed was excellent. The above defects are not apparent in the television picture to the unpracticed eye.

Practically, the two technical points listed above mean two things. A signal from the VR-8000 could be broadcast—but not legally. The signal from the VR-8000 if it were broadcast would not necessarily stay within the limits of the broadcast radio frequency spectrum as currently set forth by the FCC. We are all familiar with spectrum allocations and the problems involved.

A second very practical reason is that there are probably over 100 different manufacturers of home television receivers. Various of these home receivers do not have the design and component stability in their horizontal sweep circuits to handle a transmitted signal with the VR-8000 characteristics. All receivers are built to handle the FCC signal specifications. Although many of them can handle a signal of less rigid specifications, some of them cannot. If a VR-8000 signal were broadcast, results might vary from jumpy framing in some receivers to complete picture loss in others.

The home receivers are a limitation in the broadcast of the VR-8000 signal. But many of us are using RF distribution systems and have home receivers in use in our classrooms. Economics we achieve in our closed-circuit system are sometimes obtained by using a single coaxial line to transmit simultaneously four, five, or six programs. We let the user

select whatever channel he wants on a home-style receiver. The home receiver, if it will give us the qualitative results we want, is cheaper than a video monitor. Will the VR-8000 work for us here, or do we have to get more expensive video monitors? This is a good question. We don't know the answer.

NONCOMPATIBILITY PRESENTS PROBLEMS

- Let's say that you spend over \$20,000 for a closed-circuit videotape machine. (It may reach closer to \$30,000 by the time you get it installed and obtain all of those necessary operating and maintenance extras.) You will expect to get maximum use from the equipment. If you have a radio and television curriculum in your institution, you would like to turn out an occasional videotape program for the local television station. You are tired of transporting students and props to the commercial studio where you are allowed only the briefest rehearsal time, if any at all. You would like to produce something good, in your own studio at leisure. Fine—but not with the VR-8000.
- If you are extending the resources of your institution into the community through broadcast programs of an educational nature, you have discovered almost from the start that the inconvenience of leaving the campus for some downtown studio is sufficient to deter some of your best (and busiest) professors from undertaking broadcast courses. A

videotape machine on campus would be a godsend. You could record your courses on campus and send the tapes down to the station. Yes—but not with the VR-8000.

- One of the big hopes in education is the exchange between institutions of videotape recorded lectures and courses. But if all of these institutions have different types of videotape machines, how can an exchange be possible?

- Perhaps you will apply for special FCC permission at this time to operate a UHF channel and follow Keith Engar's example at the University of Utah. [See story on page 48.] He has installed a \$2,500 low-power transmitter to cover a spread-out campus and carry lectures to students in dormitories and living quarters within a ten-mile radius. The VR-8000 is no good for this purpose. It cannot meet the FCC electrical standards for television broadcast.

EUROVISION

Let's look at compatibility of videotape machines from another angle. If anyone knows about incompatibility, it is the various countries of Europe. Their problem of television intercommunication was as great as any other problem they have faced. Yet despite four different sets of standards, based on a different number of scanning lines per picture and different channel widths, the Eurovision system has made possible regular exchange of programs

originating in any one of some sixteen countries and seen simultaneously in the other fifteen.

The British and the Germans both manufacture "converters" for the purpose of moving programs from one standard into another. The only way this is done so far is to form the picture optically on a monitor screen and scan this with a television camera of the standard to which it is being converted. However, the complexity of such a conversion system might initially very well supersede the "simplicity" argued for in the closed-circuit videotape field.

We know that in both broadcast and closed-circuit ETV one institution and other will be increasingly interrelated. Three manufacturers, perhaps more, will be selling different kinds of equipment. What might be the answer?

KINESCOPE POSSIBILITIES

Remember kine recording? It has been steadily advancing in quality and quantity during these videotape years. A Balkanization in videotape recording standards might just spawn what the videotape recording people fear most—a simple, immediate, inexpensive, and high fidelity kinescope recording technique for closed-circuit and educational television instruction. A kine recording is compatible with just about anything. You can kine record any television picture and synchronization pulse standard. You can play back the kinescope film through a television system for either broadcast or closed circuit. You can use the kinescope film for direct projection. It

is an extremely flexible recording medium when you are concerned about "playback" systems and the economies therein.

At UCLA a campus-wide distribution system is being installed. The primary purpose of this system is to provide a central projection facility for the screening of existing educational films in classrooms via the TV system. Large economies are foreseen over the conventional projection service method with greatly increased convenience for the instructor. Soon there will be recorded lectures, demonstrations, seminars, etc. "Central Projection" will be asked to screen these as well.

As instructional television systems become operational, the playback cost will become an important item when the role that the use of television, film, and kinescope will take in the instructional process is finally determined by each institution. A lecture on videotape played back to a hypothetical single monitor via a television distribution and display system needs a proposed minimum investment of approximately \$25,000. A lecture on film which may have been made either by cinematography or kinescope to a hypothetical single monitor via a television distribution and display system might need a minimum investment of \$4,000.

Once elaborate CCTV origination, distribution, display, and recording systems are created, the pressure will be to get as much use out of the system as possible. This very realistically means the simultaneous distribution of recorded lectures and

resource materials. At the 9:00 a.m. to 10:00 a.m. hour on a large campus, five lectures which have been previously recorded might be scheduled for playback to students at different locations simultaneously. At this time, the prospect of five television film chains is much more encouraging than the prospect of five videotape recorders.

At the University of California at Berkeley, a VR-1001 broadcast standard videotape recorder is being used with a Marconi Mark IV image orthicon camera to provide for simultaneous and delayed viewing of calculus lectures given by the mathematics department under normal and actual conditions in a lecture hall capable of seating 400 students. The superb utility and convenience offered by the use of the videotape process in creating the day-to-day record is unquestionable. The sensitivity of the television system permits us to work in available light and under natural conditions of room use. The immediate access that both the instructor and the student have to the recorded material which is the product of the videotape machine places the utility and the responsibility where it belongs—in the hands of the student and the instructor.

But experience at the UCLA and Berkeley campuses is beginning to question and define the various roles that videotape, film, and kinescope might take in the closed circuit playback system. The real utility of videotape might appear to be in the creation of the record. The real utility of film and kinescope might appear to be in the playback of the

record. The grey area in closed circuit is at what point you might go from one process to the other. If you use kinescope techniques alone, you pay for the privilege of storing whatever you chose to record, whether you really need to store it or not. You also work with a built-in delay as far as playback is concerned.

An example might be in the area of teacher training. A student teacher goes out to a local school for practice teaching. With her go a couple of remote controlled cameras and a portable videotape machine. During the day, a number of rolls of tape are recorded, some of which contain moments which would benefit the entire class in practice teaching to see. These particularly instructive selections are played back, the following day, for the benefit of the student teacher and her colleagues. The tape is then erased and can be used for the same purpose again with the next student. Occasionally things happen in the demonstration classroom which are entirely unpredictable. They could never be captured on film because no one could afford to expose film hour after hour in the hope of catching a few minutes of some classic example. But closed-circuit videotape can be recording all day, if enough tape is on hand, at a cost of perhaps five to ten dollars an hour. The few moments of priceless action which took place somewhere in the midst of the recording, can now be transferred from the videotape to film by kine recording and stored in film form for easy and convenient use.

THE AMPEX VR-8000

In March we saw a demonstration of the Ampex VR-8000 prototype. We said that the picture was fine. But this was a demonstration. Most of the tape we saw, aside from the live demonstration of recording and playback, consisted of recordings made originally on the VR-1000 broadcast machine and *re-recorded* on a VR-8000. (Remember that you can only go in this direction. You cannot go to the reverse and play back a VR-8000 tape to record it on a VR-1000 machine.) At the demonstration with a Marconi 4½-inch image orthicon camera putting pictures into it and Conrac monitors to display the result, the machine did a very creditable job. But unfortunately, the technical and operational demands made upon a machine in actual use are never the same as they are at a demonstration. They never are and they never will be.

There are bound to be certain limitations which will not be discovered and solved until the closed-circuit machine is in actual use under "field" conditions. When the broadcast videotape machine first made its appearance in the spring of 1956, the networks eagerly jumped to pay \$75,000 apiece for prototype models. A hundred orders were placed for production-run machines and soon, many broadcasters were equipped with videotape. However, it was found, for instance, that a tape could only be played back on the very machine which recorded it—or at least by the very head assembly. The networks gladly bought enough extra head assemblies at \$300 each so that

they could ship the heads which recorded a tape along with the tape when it was to be played back at another station on another machine. When broadcast tapes were stored for future use, the heads had to be stored with them. These and other problems were ironed out with time and technical advance. But of course, the broadcast machine basic model sells today for around \$45,000. When you have it, you have the best that is possible today in terms of quality, reliability, and compatibility.

CCTV REQUIREMENTS

What are the requirements in closed circuit? We do not have the budget ability to muster up funds such as the broadcaster has. But is the need for quality, reliability, and compatibility in CCTV any less than

that of the broadcaster? We do not think so. If you fail your purpose or goal in broadcast in a specific instance, they send you letters and post cards. If you fail in closed circuit, they beat upon your walls and descend upon you. Both ideally and practically the excellence of standards for closed-circuit television in education are no less important than for broadcast.

The videotape recording process is five years old. Will it take five more years of progress to solve the problems we can now foresee with the "closed-circuit" videotape machine? Where will kine recording have advanced by that time? And how soon might thermoplastic recording make everything else obsolete? Only hindsight can really determine whether our day-to-day decisions have been wise—or otherwise.

Projects and Products

a column by Philip Lewis

*Director, Bureau of Instruction Materials
Board of Education, Chicago*

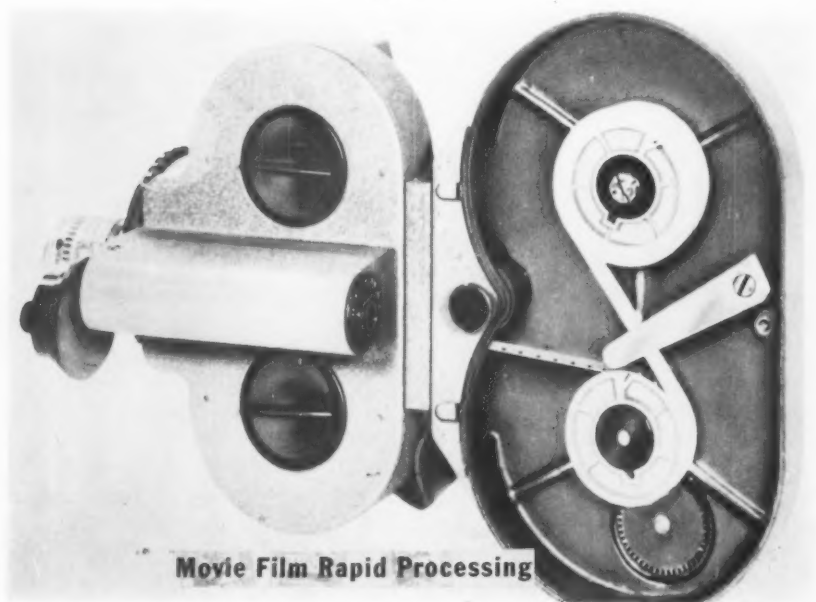
Motion Pictures— From Exposure To View In Less Than 60 Seconds

Rapromatic Processing is a unique mechanical technique for applying a processing solution to an emulsion by sandwiching the photographic material with a paper web saturated with appropriate photochemicals. It

offers unlimited applications in fields demanding immediate access to results and holds great potential for TV applications.

The Rapromatic Magazine adapts easily to any roll film movie camera (Figure 1) and converts any 16, 35, or 70mm unit into a processing lab. A spring-loaded roller is the only modification required on standard magazines. In operation, Raproroll,

Figure 1



a chemically presaturated paper material in roll form, fits neatly into the magazine or other processor and is easily removed. By a mechanical squeezing action at the point of sandwich formation, it develops and fixes film on contact as footage is being shot. Quantity of solution is accurately controlled by the thickness, composition, and wind tension of the paper web.

Other processing units with greater capacity are also available. Write to Mr. E. F. Richardson, Rapromatic, Inc., Oak Drive — Syosset, L. I., New York, for literature and specification sheets.

Contour Cable Marks A Major Step In Miniaturization

The Hughes Aircraft Company exhibited a revolutionary cable display which is flat and flexible and saves almost half the weight of conventional products. This line was unveiled at the recent Institute of Radio Engineers convention in New York.

Hughes engineers have imbedded flat metallic strips in a plastic dielectric ribbon not much thicker than the cover of a paperback novel. Up to 40 separate conductors can be accommodated in a single ribbon (Figure 2). Although designed primarily for missile use, a wide variety of applications in many other fields are envisioned. Because of its large flat surface area, contour cable dissipates a certain amount of heat which conventional cable cannot do.



Figure 2

Therefore, more current can be passed through a conductor without overheating it, or smaller conductors can be used for a given job.

Additional data can be obtained concerning this development from Carl Byoir & Associates, Inc., c/o Hughes Aircraft Company, Florence Ave. and Teale Street, Culver City, California.

Folding Room Divider Has Sound Isolation Properties Equal To Concrete Block Wall

The Acousti-flex wall is a folding room divider which gives high sound isolation and acoustical privacy. This means that large spaces or rooms can be divided into smaller areas and yet give complete audio privacy to each of the groups meeting or working in the various divided areas.

Sound retardation qualities are due to the use of a revolutionary new fabric composed of synthetic materials interwoven with strands of lead

metal. Two layers of the fabric are sealed together for double sound retardation qualities. The product is of heavy-duty construction, permanent, easy to clean, and will be available in a colorful, textured pattern.

Figure 3 illustrates one application whereby a space can be divided into thirds or left completely open as desired. Special jambs, hanger assemblies, and floor seals are supplied to insure effective results. Figure 4 plots the results of sound transmission as a result of the Riverbank acoustical laboratory testing.

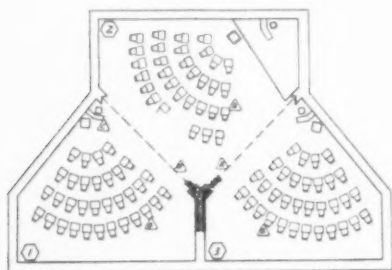


Figure 3

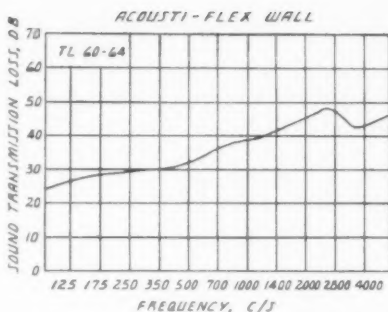


Figure 4

This preliminary data provides the first technical information released on this major product development achieved through the combined efforts of the School Equipment Division of Brunswick Corporation and Mohasco Company. Acousti-flex wall will be available for shipment and installation during August of 1961. Contact Brunswick Corporation, School Equipment Division, 2605 Kilgore Road, Kalamazoo, Michigan, for Preliminary Handbook.

NAEB

Research
Fact
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Series I: The Effectiveness of Television as a Teaching Tool

91. Learning Aural-Oral Spanish Skills by Television

A Pilot study conducted by the University of Alabama under contract with the Alabama Special Educational Television Project (and financed in part by The Fund for the Advancement of Education and The Ford Foundation), December, 1960. 22 pages.

At the beginning of the first semester of the school year 1959-60, a study was begun for evaluating the effectiveness of teaching Spanish I by educational television in relation to aural-oral skills in Alabama high schools.

The ETV Spanish program was produced by the University of Alabama broadcasting services and was taught by a university professor. Three high schools used the ETV program in Spanish classes taught by a qualified teacher.

The instrument used for evaluating aural-oral skills was in two parts:

1. A list of 21 questions to be asked and answered in Spanish.

2. A Spanish reading selection.

The students to be interviewed in each school were selected at random. The selection was made from the teacher's roll and the teacher sent each student to the interviewer.

The interviews were given in the last month of the school year. Recordings were made and evaluated for the student's pronunciation, comprehension, vocabulary, and grammar by a committee of expert judges. This committee was composed of two college Spanish teachers and one high school Spanish teacher.

CONCLUSIONS

The inter-rater correlations indicate considerable agreement between independent judges in rating the two variables, (1) pronunciation and (2) comprehension, vocabulary, and grammar.

The inter-variable correlations indicate that considerable variance not common to the two variables exists.

Students taught these aural-oral skills by ETV and non-qualified

teachers are as proficient in those skills as the students taught by qualified teachers without ETV.

Students taught by ETV and qualified teachers do learn the measured aural-oral skills significantly better than either non-ETV students taught by qualified teachers or ETV students taught by non-qualified teachers.

GERALDINE JOHNSON

N A E B

Research
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Series IV: Audience Studies

36. Listener Attitudes Toward Television in Columbus, Ohio.

*By Robert P. Lacy and John H. Pennybacker, Department of Speech, Ohio State University, October, 1960.
10 pages.*

This study attempted to discover the extent to which the disclosures by the Federal Trade Commission—that television commercials were being rigged to make the products advertised appear to better advantage—and disclosures of similar nature by other institutions, affected the attitudes of listeners toward television; and the degree of confidence in TV.

The study was conducted as one of a series of studies of radio and television audiences conducted by graduate students under the supervision of Harrison B. Summers.

Field work was carried on during April, 1960, with the assistance of some sixty graduate and undergraduate students in courses in radio and television. Interviewers left questionnaires at 1,100 homes, representing a cross-section of adult men and

women living in family groups in the metropolitan Columbus area. These men and women were in higher educational and income groups, due to the failure of larger percentages of the lower socio-economic groups to complete questionnaires. Usable information was provided by a total of 700 men and 982 women.

Questions asked dealt generally with the accuracy and fairness of TV in the fields of news reporting and discussions of public issues; with fairness in treatment of candidates for political office; the attitudes of listeners toward editorializing by TV stations and toward providing public interest or public service programs in prime time; and with criticisms frequently launched against TV, including criticisms of TV advertising.

FINDINGS

Replies showed a substantially greater confidence in TV than in newspapers as a source of accurate local news—34% of the men and 41% of the women; 38% found no difference between the two media; the remaining 12% “didn’t know.” Similar replies were received concerning the accuracy of national news on TV as compared to newspapers—with the feeling that TV is more accurate.

When asked whether TV was fair in politics, respondents said “TV was generally fair.”

Only one-fourth of the respondents believed that TV stations should editorialize; nearly twice as many believed that TV stations should *not* editorialize. However, listeners seemed to believe that they would be more greatly influenced by editorials on TV than by those in newspapers.

Moderate majorities of every age and educational group favored the idea of requiring cultural programs—public service programs—with the exception of non-college men.

Younger adults were less inclined than older to brand violence on TV as harmful.

Although a majority of respondents believed that TV commercials are frequently rigged, the listeners did not necessarily criticize either TV or advertisers.

Younger women more than older women objected to the “piling up” of commercials within the running time of a program; older women more than younger objected to “hard sell” commercials, and to use of bad taste in advertising.

CONCLUSIONS

Majorities in the study:

- Believe TV to be more accurate than newspapers in reporting both local and national news.
- Consider TV less biased than newspapers in providing news relating to important public issues.
- Believe TV to be fair in giving news concerning opposing candidates for office, and in making time available to rival candidates.
- Do not believe that TV should editorialize on public issues.
- Are in favor of requiring TV networks and stations to provide public service programs in prime evening time.
- Consider the portrayal of violence on TV as being harmful to children, but not injurious to adult viewers.
- Believe that at least some TV commercials are visually rigged to make products appear to better advantage—but believe that the same practice is found equally in printed advertisements in national magazines.
- Are annoyed by the numbers of commercial announcements in and between TV programs, by “hard sell” commercials and exaggerated claims and by various other shortcomings in the handling of TV commercials—but have no objections to advertising as such on TV if properly handled.
- Would be unwilling to pay an annual fee—even one of \$5 or \$10—for advertising-free TV programs.

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Series IV: Audience Studies

37. Increasing the Audience for Educational Television

By Edwin B. Parker, Institute of Communications Research, University of Illinois, November, 1960. 13 pages. (This study was made possible by a grant from the University of Illinois, College of Journalism and Communications.)

The study, an application of learning theory to changes in the audience of educational TV, was designed to provide a check on an assumption about audience behavior that has considerable significance for program planning, particularly on educational TV channels.

The assumption is that audience members who find the content of a particular program rewarding are more likely to view later programs in the same series, or other similar programs, than are people not so rewarded.

The process of audience reaction is discussed in three stages: selection, cathection, and reinforcement. The first two stages are considered

to be screening conditions for later stages—passing through each of the earlier stages is a necessary condition for arriving at later stages. Similarly, reinforcement increases the probability of selection of later programs in the same series, although new audience can still be added at the selection stage as a result of promotion, program listings, and various chance factors.

This study was carried out in the fall of 1960, when WILL-TV (Channel 12, Champaign-Urbana), the University of Illinois ETV station, became the first noncommercial TV outlet to program the commercially produced *Play of the*

Week series, a 39-week series of two-hour quality dramas.

Respondents were interviewed by telephone, during the broadcasting of the program, several different times. Respondents who claimed an increase in viewing of other programs since starting to view *Play of the Week* named the programs as: the Friday night BBC plays, political discussions, and programs of music.

The results of the survey support the hypothesis that an increase in viewing of other programs on the same channel can be attributed to the repeated viewing of a series of TV programs. However, the characteristics of the people who

find quality drama rewarding are such that they are more likely to view other programs on educational TV anyway. But this does not account for the greater increase in other viewing by people so reinforced.

Therefore, if one of the goals of educational TV is to attract an audience interested in programs of a cultural and educational level above that which most commercial channels are willing to attempt, then a wide variety of such programs should be tried.

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Series IV: Audience Studies

38. An Audience for Educational Radio

By Bruce H. Westley, research coordinator, and Philip P. Anast, project assistant, University of Wisconsin, March 31, 1960. 53 pages. (Financial aid was received from the National Educational Television and Radio Center.)

This study, carried on in Madison, Wisconsin, examined the relationship between frequent listeners to an AM-FM educational radio station, less frequent listeners and non-listeners and certain readily obtainable individual differences. These were roughly combined into "status" roles, "non-status" roles, and characteristic communication behavior. Also, certain comparisons were made for the audience for educational TV in the same community.

Interviews were conducted with 800 adult respondents in the heart of the signal area of WHA-TV—Madison and two suburbs, Shorewood Hills and Maple Bluff. The interviewing was conducted between May and August, 1957.

FINDINGS

More than 60% of respondents said they listened to WHA.

Persons listening to educational radio are more likely than non-listeners to favor and view educational TV.

Educational radio listeners are much less likely than non-listeners to own TV.

There is a negative relationship between amount of educational radio listening and of daily TV viewing.

There is a negative relationship between educational radio listening and length of TV set ownership.

WHA listeners are more likely than non-listeners to be viewers of WHA-TV.

WHA listeners have a different image of the content of educational TV than that of non-listeners.

They are more likely than non-listeners to express interest in televised formal instruction.

They are more purposive in their TV program seeking behavior.

WHA listeners are more likely than non-listeners to have serious magazines in the home.

They are somewhat more likely to have more education.

They are no more likely to have a higher income.

They differ from non-listeners in occupation.

They are more likely to have more voluntary group affiliations.

They are slightly more likely to have more children.

Neither age nor sex is related to WHA listening.

Music is the most popular class of content for WHA watchers. News and information programs are next most popular, followed by science, vocational information, and literature and art.

Heavier and lighter listeners have about the same preferences.

Program preferences appear to be unrelated to occupation.

Program preferences are related to family income.

There is no clear pattern of relationship between education and WHA content preferences.

Preference for music decreases with age; preference for science increases with age.

There is considerable similarity between what is preferred and what is broadcast.

CONCLUSIONS

1. Status roles (educational level, income, occupation) are more clearly related to being in the audience for educational television than to being in the audience for educational radio.

2. In the case of non-status roles (age, sex, family composition), the picture is not quite so clear. Age is not related to educational radio listening. As to family composition, educational radio listeners are much less likely than non-listeners to have only one adult and they are slightly more likely to have children. Neither of these relationships holds true for educational TV viewers in relation to non-viewers. Sex proved to be significantly related to educational TV viewing but not to educational radio listening.

3. The educational radio audience is a diverse audience in many respects. What distinguishes it is a difference in education and a difference in a tendency to use the mass media to seek out information and cultural experiences, even though listeners differ to some degree in which of these they emphasize.

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Series VI: Impact

16. Television and the Family. An effects study.

A report on inquiry designed and directed by W. A. Belson, Ph.D., and carried out by the Audience Research Department of the BBC under the supervision of Professors A. R. Knight (Chairman), M. G. Kendall, P. E. Vernon, and Barbara Wootton. British Broadcasting Corporation, 1959. 151 pages.

This inquiry into the social and psychological effects of television on adults began in 1954. Cities included in the survey were London, Birmingham, and Wakefield. Interviews were conducted and questionnaires filled out during various seasons of the year. The two areas of the report—family life and sociability—were subdivided.

Family life

1. The degree to which members of the family stay at home together.
2. The degree to which the married couple stays at home together.
3. The degree to which the younger members of the family stay at home together.
4. The total amount of activity of a "home-centered" kind which ordinarily occurs.
5. The degree to which the various members of the household do things together (e.g., do the washing-up together, etc.).

Sociability

1. The amount of visiting done by viewers.
2. The degree to which viewers receive visitors in their homes.
3. The way in which guests in viewers homes are entertained.
4. The ordinary run of sociable acts as they occur in the day-by-day round of events.

THE RESEARCH

Diary-type survey records were kept to establish the times at which each member of the household was at home during a specific day.

Analyses were made of primary family units—each unit being confined to the parent(s) and such dependent or unmarried offspring as lived with them. (Persons living alone were not included in the analyses.)

The degree to which the family was at home together was measured

in terms of the number of persons at home during a given half-hour. (The viewer and non-viewer families were closely matched for *size* of family and for other relevant characteristics.)

Viewers and non-viewers were matched according to: a) number of people in the primary family unit, b) number of people in it with full-time employment, c) various characteristics of the family, d) whether survey contact said he was, as a child, a member of a club or society of any kind, and e) tendency of survey contact to leave parts of the questionnaire and diary incomplete.

FINDINGS

The effects of TV on family life and on sociability are highly sensitive to local and seasonal factors. They depend, among other things, upon the viewer's cultural and family background, and upon the area in which he lives.

TV and Family Life

- TV changes the degree to which the members of the family are at home together. Its more general effect is to bring the family together during the hours of evening transmission.

- TV tends to keep the family at home during the morning and afternoon, varying with the area, season, and day of the week.

- Younger, childless couples and other small families and adult families tend to be kept at home by TV. However, larger families tend to be less at home together.

- In the infant-to-22 age group, there is a small increase in viewer homes in the amount of time spent

at home. At different periods of the day and all days of the week, including the weekend, it is clear that the main effect of TV is to redistribute the time that children and young people spend at home.

- Married couples with TV tend to be at home together more in the evenings.

- TV reduces the amount of home-centered joint activity by members of the family only slightly.

TV and sociability

- TV slightly reduces the amount and diversity of everyday sociable behavior.

- TV substantially increases the number of visitors in viewer homes during the afternoon and evening. The number coming by invitation or by standing arrangement increases in all areas. The number of casual visitors is little affected.

- TV substantially reduces the number of visits that viewers themselves make as the result of special invitation or standing arrangement. Their casual visits, however, show less reduction.

There is much less listening to the radio in TV homes; there is less conversation in the summer, but not in the winter; and there is a slight increase in the provision of food.

- T is much used for the entertainment of guests.

The survey's main finding was that, contrary to the general feeling that television is causing great psychological and social changes, the data compiled in 1955-56 showed hardly any evidence of television greatly affecting family life and social behavior.

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The NAEB began 35 years ago, as a loosely knit organization of a few pioneers in educational broadcasting. As the only professional or trade association in the field, throughout the years it has worked to improve the professional status of the educational broadcaster—and the quality of educational programing. Nine years ago, members established a tape distribution network for educational radio. This self-supporting network today supplies over a hundred educational radio stations with ten hours of programing a week, programs from foreign as well as domestic sources.

